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A MONOGRAPH

OF

ODONTOGLOSSUM.

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A MONOGRAPH

OF

ODONTOGLOSSUM.

BY

JAMES BATEMAN, Esq., F.R.S., F.L.S., etc.,

AUTHOR OF "THE ORCHIDACEÆ OF MEXICO AND GUATEMALA."

Mo. Bot. Garden
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TO HER ROYAL HIGHNESS

ALEXANDRA, PRINCESS OF WALES,

THIS MONOGRAPH

OF A FAVOURITE SECTION OF A CHARMING FAMILY,

COMMENCED ON THE EVE OF HER ROYAL HIGHNESS' ARRIVAL IN THIS HER ADOPTED COUNTRY,

Is with Permission Dedicated,

BY HER ROYAL HIGHNESS' LOYAL AND OBEDIENT SERVANT,

JAMES BATEMAN.

INTRODUCTION.

At the time (1864) when this Monograph was commenced, the successful application of the system of cool treatment to Orchids accustomed to a moderate temperature in their native haunts gave a fresh impulse to the cultivation of that charming tribe of plants. By its means, what might almost be regarded as a new Orchid-world, teeming with interest and beauty, was suddenly brought within our reach. A fresh field was opened to the enterprise of collectors, the spirits of cultivators revived, and the hopes of botanists mounted high. Foremost among the spoils that we sought to secure, stood the various members of the genus Odontoglossum, which from the days of Humboldt* and Lexarza, was known to abound in species pre-eminent for the loveliness and delicacy of their flowers but which had hitherto mocked the utmost efforts of our most skilful growers. For although (thanks to the labours of Warczewitz and Lobb) the Horticultural Society and Messrs. Veitch had more than once received large consignments of Orchids —among which were many *Odontoglossa*—from the mountain ranges of New Grenada and Peru, they had invariably succumbed under the stifling atmosphere to which, in common with the denizens of India, Guiana, or Madagascar, they were remorselessly consigned. Here and there, indeed, an accidental success was achieved in a greenhouse, but the hint was turned to no account, and as a rule—notwithstanding the repeated warnings and remonstrances of Mr. Skinner, Warczewitz, and others—for thirty years we persisted in the incredible folly of growing "cool" Orchids in "hot" stoves; so deeply rooted in the minds of horticulturists was the original prejudice! But it yielded at last, and no sooner had a few houses—constructed and managed on the cool-culture system—made it clear that the Orchids of temperate regions were prepared to submit to the skill of the cultivator, than a general raid was made upon the more accessible countries in which they were known to abound—more especially certain districts in Mexico and New Grenada. To the latter country, collectors were simultaneously sent off by the Horticultural Society, who despatched Mr. Weir; by Mr. Linden, of Brussels; and by Messrs. Low, of the Clapton Nursery; and all these rival envoys, much to their own mortification and chagrin, found themselves sailing for the same destination in the same steamer on the same errand!

It was now that the idea occurred to me of devoting a work of adequate dimensions to the illustration of the particular genus, which from the dried specimens in our herbaria, the plates in *Pescatorea*, the figures of Humboldt, and the descriptions of travellers was evidently destined to hold the first place among all the numerous company of cool Orchids; and thus began the

* The mention of the illustrious traveller's name reminds me of the obligations under which he laid me when I first visited Berlin, in the spring of 1836; for, young as I was, he deigned to pour into my delighted ears all the stores of Orchid-lore collected during his memorable wanderings among the Andes of New Grenada and Peru. Here, he said, the greatest store of beauteous Orchids was to be found, and we are now beginning to realize the truth of his remark.

present Monograph. I had expected that after the work of importation had fairly commenced, not only would the species described by Lindley and Reichenbach be easily obtained, but that along with these a multitude of others entirely new to science would likewise be received. In this respect, however, the results have scarcely come up to expectations; a circumstance that is partly to be accounted for by the difficulty attendant on their importation,* but which is owing, I grieve to say, in a far greater degree to the untimely deaths of those zealous collectors, Bowman and Pearse, who, when in the very heart of the cool Orchid regions of Ecuador and Peru, succumbed under the pressure of their arduous labours. In Mexico, from which much novelty was expected, little has been added to the number of *Odontoglossa* previously known, and the same may be said of Costa Rica, notwithstanding the vigorous exertions of Mr. Endries. But in these countries it is evident that the genus is not so fully developed as in the mountain ranges of New Grenada, Quito, and Peru. From the latter country little indeed has yet been received, although the eastern slopes of its Andean chain are probably richer in species of unknown or unimported Orchids than any other portion of the globe. But we must await further improvements in the navigation of the affluents of the mighty Amazon, before we can hope to receive any large instalment of these much-coveted treasures.

A combination of the various causes referred to above, by limiting the choice of materials, has seriously delayed the publication of this work, which I had hoped would by this time have reckoned at least a dozen parts. But as there seems to be no immediate prospect of these hindrances to more rapid progress being taken out of the way, and as the sands of my life are fast running out, I have thought it best in the interests of my subscribers, to make the present number the last. The six parts now published will, however, form a volume of convenient size, and one which may, as I trust, serve to show how rich New Grenada is in the members of this glorious genus. What wealth of *Odontoglossa* Peru may possess, I must leave some future botanist to unfold. He will have a pleasant task, and will probably have doubled the roll of the genus as now known, before his work is done.

During the progress of this Monograph a curious incident has occurred, which may deserve a brief notice. When the publication was commenced, the introduction of two particular plants—more perhaps than of any others known to orchidists—was earnestly desired by growers, these two being the *Odontoglossum crispum* of Lindley, and the *Cuitlauzina pendula* of Lexarza. The finding, or rather the re-finding of the former—so magnificent were the specimens in the Lindleyan Herbarium—was declared to be worth a king's ransom; while for the latter—described as a native of Oaxaca—more than one collector had scoured that province in vain. *Strange to say, they were already in our grasp:* the *O. crispum* being none other than my *O. Alexandræ*, while—as explained under Plate VIII.—the *Cuitlauzina* proves to be identical with the long previously introduced *Odontoglossum citrosmum* of Lindley. Whether all the botanical pressure that can be brought to bear upon our cultivators may suffice

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* Cool Orchids from the interior of South America, have either to be carried across the Andes, where the intense cold of the passes is often fatal to them, or to be conveyed by a tedious voyage down the great rivers, where the heat is greater than their constitution—often delicate—can endure. In this way whole importations have been lost, including, I am sorry to say, one or two cargoes of the exquisite *Odontoglossum Warczewitzii* (figured in Reichenbach's "Xenia") which still unhappily remains a desideratum.

to convert *O. Alexandræ* into *O. crispum,* or change *O. citrosmum* into *O. pendulum,* is an extremely doubtful question, so strong is the hold that the erroneous names have already secured on the public mind. In the parallel case of *Wellingtonia,* that popular Conifer—though now almost universally admitted to be a *Sequoia*—remains *Wellingtonia* still, and seems likely to do so for all time to come.

The range of the genus *Odontoglossum,* as may be gathered from the descriptions attached to the various Plates, is of a peculiar character, being at once restricted and extensive. It is restricted, for it never leaves the Andes, and it is extensive, for it is found in all parts of that vast mountain-chain, from the confines of Florida to the frontiers of Chili. As yet no species has ever been met with at a lower elevation than 2500 feet above the sea-level, nor, with the exception of *O. hastilabium,* has any *Odontoglossum* been known to descend so low ;—the most usual altitude being 5–6000 feet, though a higher point is often reached. Like the humming-birds which frequent the same mountains, and vie with them in beauty, nearly all the *Odontoglossa* are exceedingly local, and in this way two of the most beautiful species, *e.g.,* *O. vexillarium* and *O. Roezlii,* eluded discovery for many years, even in a region supposed to be well explored by collectors.

As to the botanical limits of the genus, I must needs confess that they are exceedingly difficult to fix. It is as true now as when Professor Lindley first made the observation to me, that "The more we build up the partition walls between *Odontoglossum, Oncidium,* &c., the more the species break them down." Certainly no one at first sight would suppose *Odontoglossum cariniferum* was anything but an *Oncidium,* nor *Oncidium macranthum* other than an *Odontoglossum.* Indeed, I must own to a suspicion that ultimately both these genera, together with *Miltonia, Mesospinidium, Aspasia,* and possibly one or two others, may come to be regarded merely as *sub*-genera. But this difficult question is safest left in Professor Reichenbach's far abler hands. At the same time, it is not to be denied that there is such a peculiar look about the *Odontoglossa,* that even a non-scientific observer has seldom any difficulty in at once referring most of the species to their true position.

One other matter remains to which I must very briefly advert. Mr. Darwin's fascinating work on the "Fertilization" of Orchids has led many persons to suppose that this beautiful tribe lends an exceptional amount of support to the theory with which that ingenious writer's name is so prominently associated, but there could scarcely be a greater mistake. Not only is the theory in question utterly rejected by Professor Reichenbach, the *facile princeps* of living orchidists, but the greater our knowledge of the order, the less countenance does it seem to yield to the Darwinian view. We have now become perfectly well acquainted with all the genera—we might almost say with all the species—that belong to particular countries, but it is in these that the limits of variation between the different forms are most distinctly defined ; in these, too, the great principle of unity in diversity is most conspicuous—the genera holding aloof from each other, and even the species keeping themselves distinct, although the Orchid mark is unmistakeably stamped upon all alike. Mr. Gould has remarked, in his great work on the "*Trochilidæ,*" that the Darwinian theory derives no support from *them,* and the same may be safely affirmed of Orchids, which—we are now speaking of America—are the humming-birds' constant associates. Neither, while we contemplate the marvellous and inexhaustible variety of form

by which the order is distinguished above all its fellows, can any plead that this result is due to its ancient lineage, nor yet to the vast periods through which endless transformations are assumed to have been continually taking place, because Orchids—according to geologic reckoning—are but a thing of yesterday, and have never been found in a fossil state. Yet their constant companions the Ferns, trace back their pedigree to the earliest vegetation of the primeval world! To the believer, however, the problem is not hard to solve. Ferns and other flowerless plants came early in the Divine programme, because the coal, into which they were to be ultimately converted, had need to be long accumulating for the future comfort and civilization of our race; while the genesis of Orchids was postponed until the time drew near when Man, who was to be soothed by the gentle influence of their beauty, or charmed by the marvellous variety of their structure, was about to appear upon the scene. There are multitudes who could bear witness how amply, in their own experience, this gracious purpose has been fulfilled; while the writer—in whose breast a love of Orchids prevailed from his youth up—can only exclaim with the Psalmist, "Thou, Oh Lord, hast made me glad through Thy works, and I will rejoice in giving thanks for the operation of Thy hand."

J. B.

Knypersley Hall, *April 24th,* 1874.

LIST OF PLATES.

1. O. nebulosum.
2. O. Uro-Skinneri.
3. O. phalænopsis.
4. O. Insleayii.
5. O. Pescatorei.
6. O. pendulum.
7. O. hastilabium.
8. O. grande.
9. O. nævium.
10. O. cariniferum.
11. O. Lindleyanum.
12. O. gloriosum.
13. (Fig. 1.) O. Warnerianum.
13. (Fig. 2.) O. stellatum.
14. O. Alexandræ.
15. O. Reichenheimii.
16. O. læve.
17. O. luteo-purpureum.
18. O. Bictonense.
19. O. Alexandræ.
20. O. maculatum.
21. O. Hallii.
22. O. roseum.
23. O. triumphans.
24. O. Krameri.
25. O. cordatum.
26. O. angustatum.
27. O. coronarium.
28. O. blandum.
29. O. vexillarium.
30. O. Roezlii.

ALPHABETICAL INDEX

OF

SPECIES FIGURED IN THIS WORK,

WITH SYNONYMS MARKED IN ITALICS.

O. angustatum . . . . Plate 26
O. ramosissimum, Lindl.

O. Bictonense . . . . „ 18
Cyrtochilum Bictoniense, Bateman.

O. blandum . . . . „ 20

O. cariniferum . . . . „ 10

O. cordatum . . . . „ 25

O. coronarium . . . . „ 27

O. crispum . . . . Plate 14, „ 19
O. Alexandræ, Bateman.
O. Bluntii, Rchb. fil.

O. gloriosum . . . . „ 12

O. grande . . . . „ 8

O. Hallii . . . . „ 21

O. hastilabium . . . . „ 7

O. Insleayii . . . . „ 4

O. Krameri . . . . „ 24

O. læve . . . . „ 16

O. Lindleyanum . . . . „ 11

O. luteo-purpureum . . . . Plate 17
O. hystrix, Bateman.
O. radiatum, Rchb. fil.

O. maculatum . . . . „ 20

O. nævium . . . . „ 9

O. nebulosum . . . . „ 1

O. pendulum . . . . „ 6
O. citrosmum, Lindl.
Cuitlauzina pendula, La Llave.

O. Pescatorei . . . . „ 5

O. phalænopsis . . . . „ 3

O. Reichenheimii . . . . „ 15

O. Roezlii . . . . „ 30

O. roseum . . . . „ 22

O. stellatum . . . . „ 13

O. triumphans . . . . „ 23

O. Uro-Skinneri . . . . „ 2

O. vexillarium . . . . „ 29

O. Warnerianum . . . . „ 13

W Fitch del et lith

Odontoglossum nebulosum

Plate I.

ODONTOGLOSSUM NEBULOSUM, *Lindley.*

CLOUDED ODONTOGLOSSUM.

O. (Leucoglossum, *Lindl.*) pseudobulbis ovatis compressis 2–3-phyllis, foliis oblongis acutis basi conduplicatis pedunculo radicali erecto (apice) nutante 3–7-floro brevioribus, bracteis scariosis amplexicaulibus ovario duplo brevioribus, sepalis petalisque latioribus membranaceis oblongis undulatis apiculis recurvis, labelli ungue cucullato carnoso, lamellis duabus erectis dentibusque totidem anticis, limbo ovato acuto dentato subpubescente, columnâ apterâ elongatâ. (*Lindl. quibusdam mutatis.*)

Odontoglossum nebulosum, *Lindl. Fol. Orch.*
Odontoglossum maxillare, *Lemaire (nec Lindley), Illustration Horticole* (1859), *t.* 200.
Habitat in Mexico, prope Oaxaca (*Karwinski, Galeotti,* etc.), *circiter* 5000 *ft.*

DESCRIPTION.

Pseudobulbs 2 *to* 3 *inches long, smooth, ovate, somewhat compressed,* 2- *or* 3-*leaved.* Leaves 2 *or* 3 *at the apex of the pseudobulbs, oblong, acute, shorter than the* Scape, *which, rising from the base of the pseudobulbs, is bent down at its upper extremity by the weight of from* 3 *to* 7 *large and handsome* Flowers. Bracts *only half the length of the ovary, embracing the flower-stem.* Sepals 1½ *inches long.* Petals *much wider than the sepals, and like them of an oblong form, waved at the margin, and a little recurved at the end, which is sharply pointed; both sepals and petals are of clear membranous white, clouded (as the name implies) by a profusion of spots or blotches of a reddish-brown colour, which extend to nearly half their length.* Lip *of the same texture and colour as the sepals, only that the brown blotches are broader, and that there is a patch of yellow on the claw; its upper portion is of an ovate form, acute, with the margins very much torn; its fleshy disk is hooded, or gathered into* 2 *erect plates, with a pair of teeth attached in front.* Column *very long, destitute of wings.*

It was at Munich, in the year 1835, that I first became acquainted with this fine *Odontoglossum* having, through the kindness of Professor Von Martius, been allowed to examine the rich collection of dried specimens that Baron Karwinski had then recently brought home with him from Mexico. Two years afterwards living plants were sent to me from Oaxaca, which happening to arrive in the midst of that remarkably severe winter 1837–38, I naturally expected would have been destroyed on their way; so far, however, from this being the case, they appeared to have sustained little or no injury from the cold, and on being placed in a stove they soon began to push both roots and leaves. All went well so long as the temperature of the house did not exceed 70°, but when the winter had passed away and they had to face the intense heat at which the Orchid-houses of that period were ordinarily maintained, they then quickly lost their vigour and before a twelvemonth had passed were all gone, victims—like a multitude of other invaluable plants—to our then ignorance of the conditions under which alone the Orchids of *cool* countries could be expected to thrive!

I am not aware that this plant ever flowered in this country until within the last year or two, certainly no figure of it has ever been published in any English botanical periodical; I have, however, found in a French work (the *Illustration Horticole*), under the name of *O. maxillare,* what is obviously the same as the plant represented in the Plate. I should myself have probably fallen into the same mistake as Professor Lemaire, had I not enjoyed the opportunity—which he unfortunately had not—of examining the original specimens in Dr. Lindley's herbarium, and from which that able botanist drew up his description (in the *Folia Orchidacea*) of the two species. *O. maxillare,*

of which Dr. Lindley only examined a single flower—though he made a most careful drawing—is shown by a glance at the latter, to be a totally different thing; it has moreover, I fear, long since disappeared from our collections. In Dr. Lindley's description the flower-scape is said to be terminal, which in nature it never is, although from the way in which Karwinski's wild specimen was glued together, it certainly presents that appearance in the herbarium. The column moreover, and the base of the sepals and petals, are said to be pubescent, though nothing of the kind is visible to the naked eye when the flowers are fresh. With a powerful magnifying glass pubescence may certainly be seen.

Odontoglossum nebulosum flowers at different seasons of the year, always sending up its scape at the same time as the young growth. It is of the easiest culture.* The figure was derived from a beautiful specimen that flowered last November in the collection of J. Day, Esq., of Tottenham, who grows this and many other *Odontoglossa* in high perfection.

Dissections.—1. Lip, seen in front; 2. Ditto, seen sideways: *both magnified.*

* As most of the *Odontoglossa* require to be treated in the same way, I transcribe, from the 'Guide to Cool-Orchid Growing' (Reeve, 1864), the following instructions for the culture of the genus:—"They will all succeed perfectly in a low lean-to house facing the north, the mean temperature of which need not exceed 60°. They should stand on a shelf of slate or stone, near the glass, but should always be protected from the direct rays of the sun. Constant humidity should be maintained by damping the shelves and floors, but the plants themselves will only require water in moderation, and what is given to them should pass away freely, for if it stagnates, or if the compost in which they grow becomes sodden, the roots will immediately decay. A gentle evaporation is greatly assisted by placing layers of moss—to be kept damp of course—on the shelves whereon the plants stand. *Odontoglossa* cannot endure wooden blocks, but will thrive in a compost of which one-half consists of small broken potsherds, the remainder being a mixture of shredded sphagnum (dusted with fine sand) and fibrous peat. About one-third of the entire depth of the pots may be filled with this mixture, the other two-thirds containing nothing but large pieces of broken pots, so as to admit as much air as possible to the roots. The pots in which the plants are grown should stand on other pots (inverted) placed in saucers of water, in order to secure humidity and protect them from wood-lice. Nearly all the species flower during the winter or spring months, a circumstance that greatly enhances their value. Many, *e. g. O. pulchellum,* are deliciously fragrant, and the flowers of nearly all the species remain in perfection for weeks, whether left on the plants or cut for bouquets. In so vast a genus we shall, no doubt, meet with many idiosyncrasies, but nine-tenths of the species will flourish under the treatment indicated above, and which may be regarded as suitable to the majority of cool Orchids. Most *Odontoglossa* are, like the *Masdevallias,* very impatient of the knife, and cannot therefore be rapidly multiplied. They have also a peculiar aversion to fumigation by tobacco, which causes their leaves to fall off."

W. Fitch, del. et lith.

Vincent Brooks, Imp.

Odontoglossum Uro-Skinneri

Plate II.

ODONTOGLOSSUM URO-SKINNERI, *Lindl.*

MR. SKINNER'S ODONTOGLOSSUM.

O. (Leucoglossum, *Lindl.*) pseudobulbis ovato-oblongis ancipitibus compressis guttulatis 1–2-phyllis, foliis oblongis acuminatis scapo multifloro simplici vel subpaniculato multo brevioribus, bracteis membranaceis cymbiformibus acuminatis ovario 3-plo brevioribus, petalis sepalisque subæqualibus late-ovatis acuminatis, labelli ungue bilamellato limbo cordato maculato acuminato undulato, columnæ alis ovatis deflexis.

Odontoglossum Uro-Skinneri, *Gardeners' Chronicle.* vol. 1859, pp. 708, 724.
Habitat in Guatemala, prope Santa Catarina de los Altos, 5–6000 *ft.*, *Skinner.*

DESCRIPTION.

Pseudobulbs 3 *or* 4 *inches long by nearly as many wide, much flattened, and very sharp at the edges, always powdered with minute brown dots, which do not appear until the second year.* Leaves *oblong, broad, and stiff, acuminate at their extremities, much shorter than the scape.* Scape *generally simple, but sometimes slightly panicled, about a yard high, and bearing from* 10 *to* 20 *agreeably scented* Flowers. Bracts *of a delicate texture, boat-shaped, scarcely more than one-third the length of the ovary.* Sepals *and* Petals *nearly equal, broadly ovate, about an inch long, of a green colour, covered with rich reddish-brown spots.* Lip *broad and spreading, heart-shaped, acuminate, and turned inwards at the apex, its disk white, but covered with round blue spots, which cease at the foot of the isthmus (claw), where two upright and nearly parallel lamellæ (plates) are stationed.* Column *furnished with ovate, decurved, round-headed wings.*

This is a robust and stately plant, nearly allied to *O. Bictoniense* to which at one time Dr. Lindley was disposed to refer it, but far larger and handsomer in all its parts. Its broad pseudobulbs which become covered in their second year with a multitude of small reddish dots, its wide sepals and petals, the spotting of its lip, and its general resemblance to *Zygopetalum Mackaii* will, however, sufficiently distinguish it. Being found at a higher elevation than *O. Bictoniense*, it requires to be kept more cool, and as it affects dark and wet banks in its native wilds, it is better to place it in a north house where it can be more readily protected from the sun. Treated in this way it grows luxuriantly and flowers abundantly at Knypersley, whence the specimen figured in the Plate was derived. Its flowering season seems to vary, for while with me it is now (May) coming into bloom, about London November is the more usual month.

O. Uro-Skinneri was the latest discovery of my indefatigable friend Mr. Skinner (after whom it was named by Dr. Lindley), and who, though now settled in England, is as much devoted to his favourite tribe as when, while resident in Guatemala, he was wont to delight the Orchidists of Europe by the multitude of new and beautiful plants that he was constantly dispatching across the main.

Dissection.—1. Side view of lip and column: *magnified.*

W. Fitch, del. et lith.

Vincent Brooks, Imp.

Plate III.

ODONTOGLOSSUM PHALÆNOPSIS, *Rchb. fil.*

MOTH-LIKE ODONTOGLOSSUM.

O. (Leucoglossum, *Lindl.*) pseudobulbis ovatis obtuse ancipitibus 1–2-phyllis, foliis linearibus acutissimis racemis bi- vel trifloris spithamæis longioribus, sepalis oblongo-ligulatis acutis, petalis latioribus obovatis obtusis; labelli ampli pandurati emarginati bilamelligeri disco velutino, columnæ alis abbreviatis membranaceis.

Odontoglossum phalænopsis, *Rchb. fil. in Seemann Bonplandia*, ii. 278; *Pescatorea, Linden et Rchb. fil.* ii. 44.
Miltonia pulchella, *Hort.*
Habitat in N. Granada, prope Aspasica, alt. 5–6000 ft., *Schlim.*

DESCRIPTION.

Terrestrial. Pseudobulbs *nearly two inches long, ovate, bearing one, or more frequently two, narrow linear, very acute* Leaves, *less than a foot long, and usually withered at the extremities.* Raceme *nodding, shorter than the leaves, furnished with a few small acute* Bracts, *and bearing two, or occasionally three, very large and handsome flowers, which, the markings of the lip excepted, are of a uniform white.* Sepals *oblong, sharp-pointed, about an inch long.* Petals *broader than the sepals, obtuse.* Lip *fiddle-shaped, its front portion deeply emarginate, spread out nearly flat, very broad, its side portions much smaller, rounded, and with two continuous upright lamellæ on its velvety disk; the lip has two large irregular pale-crimson blotches on its anterior portion, with concentric lines of the same colour on its lower portion, with a small patch of yellow on either side the isthmus* (i.e. *point of junction between the upper and lower divisions of the lip*). Column *short, with membranous wings much abbreviated.*

This most charming *Odontoglossum* was discovered in the year 1850 by M. Schlim at that time engaged in exploring the higher regions of New Granada in the service of M. Linden to whose well-known horticultural establishment at Brussels he had the honour of introducing it. The species was seen in flower for the first time in the year 1856 when it appeared at some Horticultural Exhibitions both on the Continent and in London and, as may readily be conceived, attracted universal admiration. Since that time its lovely blossoms have been rarely produced, owing no doubt to its cultivation having been imperfectly understood. It has however, I believe, bloomed occasionally in the collection of the Lord Chancellor of Ireland, and more recently in that of E. M'Morland, Esq., of Haverstock Hill, with whom it thrives amazingly, and to whose kindness I am indebted for the opportunity of figuring it. In its native country it is found in a mild climate growing on the ground, or upon rocks in moist and shady situations, and by simply imitating these conditions Mr. M'Morland cultivates it with the most perfect success. His plants are kept in pots, with living moss on the surface, and their base resting in pans of water the evaporation from which cannot fail to be highly beneficial. The temperature of the house in which they are grown is that of an ordinary greenhouse, but the air is always humid, and water is freely given because, in consequence of the *open potting*, it can pass as freely away. The plants seem to grow and flower almost all the year round, though their proper and principal flowering-season is in May and June.

O. phalænopsis is entirely distinct from any species of the genus yet in cultivation, but it is allied to a still finer plant detected by Warszewicz in Costa Rica, and called in honour of its discoverer *O. Warszewiczii* by Professor Reichenbach.

Dissections.—1. Lip, seen sideways; and 2. Front view of lip: *both magnified.*

Vincent Brooks Imp

PLATE IV.

ODONTOGLOSSUM INSLEAYI, *Lindl.*

INSLEAY'S ODONTOGLOSSUM.

O. (EUODONTOGLOSSUM, *Lindl.*) pseudobulbis ovatis compressis diphyllis, foliis coriaceis oblongo-ensiformibus subundulatis apice recurvis racemo 5–10-floro erecto rigido brevioribus, sepalis petalisque oblongis subæqualibus undulatis infimis connatis, labello angusto obovato retuso basi auriculato, disci cristâ apice bilobâ dilatatâ utrinque in medio dente refracto auctâ, columnæ alis incurvis cirrhatis. (*Lindl. Fol. Orch.*)

ONCIDIUM INSLEAYI, *Barker in Bot. Reg.* 1840, *Misc.* 21; *Bateman, Orchid. Mex. et Guat. t.* 21; *Van Houtte, Flore des Serres,* 1848, *t.* 62.

Habitat in MEXICO, *Barker;* OAXACA, *Loddiges;* 5–6000 *ft.*

DESCRIPTION.

PSEUDOBULBS *ovate, slightly furrowed, compressed, bearing* 2 *leathery, sword-shaped, sharp-pointed* LEAVES, *which are less than a foot long, and like the rest of the plant of a glaucous hue.* SCAPE *upright, longer than the leaves, bearing from* 5 *to* 10 *flowers, usually from* 2 *to* 3 *inches in diameter, but sometimes considerably more.* BRACTS *few, about an inch long, occurring at intervals somewhat longer than themselves, and fitting tightly to the stem.* SEPALS *and* PETALS *nearly equal, oblong, waved, the two lateral ones attached at their base, of a pale yellowish-green tint, crossed throughout their entire length by broad bands of reddish-brown.* LIP *narrow, obovate, turned a little back, of a bright yellow colour, bordered by a belt of red blotches; on its disk are a group of tubercles, mounting two teeth on either side, and with cleft callus in front.* COLUMN-WINGS *bent inwards, and resembling in form the antennæ of an insect.*

This *Odontoglossum* was originally introduced from Mexico by the late Mr. Barker, of Birmingham, after whose gardener it was named by Dr. Lindley. It flowered with Mr. Barker somewhere about the year 1840, when a figure was prepared for the 'Orchidaceæ of Mexico and Guatemala,' but I had not then the opportunity of examining the plant, nor indeed did I ever actually see it in flower until the autumn of last year (1863) when I happened to meet with the specimen from which the illustration is derived, growing and blooming vigorously in the collection of Dr. Cauty, of Liverpool. The species had, in fact, virtually disappeared from collections during an interregnum of twenty years, and its reappearance is entirely due to the adoption of the rational system of cool treatment now happily prevailing, and under which it may be cultivated with the greatest ease.

In habit *O. Insleayi* is quite indistinguishable from *O. grande;* and although its flowers are far inferior in beauty to those of that glorious species, they bear a certain sort of resemblance to them in their colouring and general arrangement. The structure is however entirely different, for while *O. grande* has no bristle-like appendages to its column, and therefore belongs to the section of the genus which has been called XANTHOGLOSSUM by Dr. Lindley, the processes in question are clearly present (see Dissections) in the case of *O. Insleayi,* thereby bringing it under the preceding section, to which the title of EUODONTOGLOSSUM has been given by the same authority. The time and mode of flowering are also different in the two plants, for while in *O. grande* the flower-scapes appear almost simultaneously with the leaves, and are usually in perfection in July, those of *O. Insleayi* are not produced until long after the pseudobulbs have been matured, nor do they expand their blossoms until late in the autumn.

As is the case with most of its congeners, there are many varieties of *O. Insleayi*, some of which are much less attractive in their colouring than the one represented in the Plate, while others have much larger flowers, as in the example given in the vignette which is copied from an old woodcut in the Journal of the Horticultural Society. Unfortunately this latter variety has, I greatly fear, been lost to the country, but collectors should endeavour to reintroduce it.

I have already referred to Dr. Cauty's success in the treatment of the subject of the present Plate, but his skill and care are equally conspicuous in the management of a miscellaneous collection of Orchids, which he contrives to grow under circumstances such as would have deterred most men from attempting to grow any plants at all. The house in which he lives is in the very centre of Liverpool, and has in its rear a small back court, such as is usually devoted to dustbins and coal-holes, but where Dr. Cauty has found space for three little Orchid-houses of different temperatures in which the Orchids of different climes are perfectly at home. I can really see no reason why in all large towns—in London more especially—Dr. Cauty's example should not be extensively followed, and the luxury of an Orchid-house be thus brought within the reach of many who now consider it quite beyond their grasp.

Dissections.—1. Lip, seen sideways; 2. Ditto, seen in front: *both magnified.*

Flower (*nat. size*) of a large variety of *O. Insleayi.*

W Fitch, del et lith

Vincent Brooks, Imp

Odontoglossum Pescatorei

Plate V.

ODONTOGLOSSUM PESCATOREI, *Lindley.*

M. PESCATORE'S ODONTOGLOSSUM.

O. (Isanthium, *Lindl.*) pseudobulbis ovatis lævigatis nebulosis diphyllis, foliis loratis planis basi angustatis paniculâ amplâ erectâ multiflorâ 3-plo brevioribus, bracteis minutis, floribus membranaceis, sepalis ovato-oblongis apiculatis leviter undulatis, petalis conformibus latioribus, labello cuspidato subpandurato basi denticulato, cristæ lamellis lateralibus distantibus cartilagineis laceris lineis duabus divergentibus apice denticulatis interjectis, columnæ brevis alis brevibus cuneatis laceris. (*Lindl. Fol. Orch., quibusdam mutatis.*)

Odontoglossum Pescatorei, *Lindley, in Paxton's Flower Garden*, iii. *t.* 90; *Pescatorea, t.* 1; *Warner's Select Orchidaceous Plants, t.* 25.
Odontoglossum nobile, *Reichenbach fil. in Linnæa*, 22, 850.
Habitat in New Granada, Province of Pamplona, at the height of from 5000 to 6000 feet, *Funck and Schlim.*

DESCRIPTION.

Pseudobulbs *from* 2 *to* 3 *inches long, of an ovate form, glossy, and mottled with dark brown, usually bearing* 2 *lorate* Leaves, *which are from* 6 *inches to a foot long, narrowed at the base and sharp at the end, much shorter than the tall upright branched* Panicle, *which sometimes rises to the height of* 3 *feet, and bears from* 6 *to* 60 *membranous* Flowers *of a peculiarly delicate texture.* Bracts *very small.* Sepals *ovate-oblong, apiculate, slightly waved at the edges, an inch long, white with streaks of rose-colour.* Petals *similar in form and texture to the sepals, but broader and more curled at the edges, of the purest white.* Lip *inclining to fiddle-shape, pointed, but with the point invisible when looked at in front; towards the base are two short upright tubercles that pass forward into plates diverging from each other, and toothed in front. On either side are two pseudo-wings, irregularly indented, and, like the plates, of a beautiful gold colour, streaked with red. The rest of the lip is white, with the exception of a few irregular blotches of crimson, the number and size and disposition of which vary considerably in different individuals.* Column *short, with short wedge-shaped* Wings, *a little indented at the edges.*

This lovely plant was discovered in the year 1847 by MM. Funck and Schlim when on a botanical mission to New Granada, in the service of M. Linden. According to its discoverers, it is not unfrequently met with in the provinces of Pamplona and Ocaña, at an elevation above the sea-level of about 5000 feet, inhabiting the oak forests which—where the climate is mild—clothe the eastern slopes of the glorious Cordillera.

O. Pescatorei flowered with M. Linden for the first time in 1851, and attracted, as well it might, universal admiration. Nothing indeed, even in the beautiful family to which it belongs, can surpass the delicacy of its blossoms, with their charming mixture of rose and white, relieved by a few deep-crimson stains scattered irregularly over the lip. Its habit too is good, and its stately panicle of flowers well-proportioned to the size of the bulbs and leaves. It blooms abundantly in the spring months, and its blossoms continue at least six weeks in perfection. We need not wonder that a plant with such a rare combination of good qualities should have been selected by M. Linden to do honour to his patron the late M. Pescatore, after whom he named it, and in whose sumptuous work ('Pescatorea') it forms the first plate.

Although the species, owing to the difficulty of importing it alive, is still exceedingly rare in this country, it has already flowered in many of the principal collections, especially in those of Mr. Rucker, Mr. Basset, Mr. Day, and

Mr. Dawson, of Meadow Bank near Edinburgh. With the last-named gentleman a panicle, with sixty flowers upon it, is now (April, 1864) in full beauty. Mr. Fitch's drawing was taken from an exquisite variety, of which Mr. Day is the fortunate possessor, and which he kindly placed at my disposal for the purpose of being figured in this Work. In the Plate the flower-spike is represented as panicled because such—as in the case of all the other varieties—is no doubt its normal state; as yet however racemes only have been produced.

The treatment recommended for other *Odontoglossa* (see under Plate I.) will suit *O. Pescatorei*, which is as easily managed as any of the genus.

DISSECTIONS.—1. Lip, seen sideways; 2. Lip, front view: *magnified.*

W.H. Fitch, del.et lith.

Vincent Brooks, Imp.

Odontoglossum pendulum.

PLATE VI.

ODONTOGLOSSUM PENDULUM.

PENDENT-FLOWERED ODONTOGLOSSUM.

O. (TRYMENIUM) pseudobulbis subrotundis compressis lævibus diphyllis, foliis oblongo-ligulatis obtusis racemo pendulo multifloro paulo brevioribus, sepalis oblongis obtusis petalisque conformibus subæqualibus, labello unguiculato reniformi basi excavato marginibus callosis, clinandrii alis lateralibus subtruncatis dorsalique rotundato denticulatis.

ODONTOGLOSSUM CITROSMUM, *Lindl. Bot. Reg.* 1842, *Misc.* 68; 1843, *t.* 3; *Fol. Orch. n.* 59; *Warner's Select Orchidaceous Plants, t.* 28; *Lemaire, Jard. Fl. t.* 90.

CUITLAUZINA PENDULA, *La Llave et Lexarza, Orch. Mex.* 2; *Reichenbach, fil., Bonplandia*, iii. 15, 16.

Habitat in MEXICO, *Lexarza, Karwinski, Barker.*

DESCRIPTION.

PSEUDOBULBS *clustered together*, 2 *to* 4 *inches long, compressed, ovate or almost round, smooth and glossy*, 2-*leaved.* LEAVES 6 *inches to a foot long, leathery, oblong-ligulate, obtuse, rather shorter than the raceme.* RACEME *issuing at an early stage from the young growth, pendulous, many-flowered, rarely branched, longer than the leaves.* SEPALS *and* PETALS *similar in form, pure white, or in some varieties of a faint blush or rose-colour, frequently sprinkled with minute red dots, oblong, obtuse, about an inch long.* LIP *unguiculate, kidney-shaped, channelled (with the solid edges turned up) along its base, on which there is a patch of yellow, with a few bright dots in the position where a crest (here entirely wanting) is usually placed; the colour of the disk of the lip varies in different specimens, being sometimes entirely white and sometimes tipped with faint rose-colour or deep-crimson.* COLUMN *with upper and lower wings (all of which are toothed), that on the back being rounded and the others truncated.*

Early in the present century, two Spaniards—La Llave and Lexarza by name—settled at the Mexican town of Valladolid, in the fertile province of Mechoacan. They were both attached to botany, but the younger of the two, Lexarza, was so attracted by the beauty of the numerous Orchids of the district that to these he devoted himself with an ardour that would have done honour even to the Lindleys and Reichenbachs of our own day. As the result of his labours a little work—'Orchidianum Opusculum' he modestly styled it—presently made its appearance, wherein about fifty species, all at that time new to science, were described with remarkable accuracy and skill. Among the number there was a plant,—*Cuitlauzina pendula* he called it,—said to be of surpassing loveliness and to form an undoubtedly new genus the distinctive characters of which were minutely given. As time went on and the rage for Orchids developed itself in Europe, a keen desire was naturally felt by cultivators to add so fine a plant to their lists; but although many collectors visited Valladolid and laid hands upon nearly all the other desirable Orchids described by Lexarza, still nothing was heard of the *Cuitlauzina*, and on the cover of the latest number of Dr. Lindley's 'Folia Orchidacea' its name may be found in the list of genera "unknown to the author." About the same time I myself addressed a letter to the 'Gardeners' Chronicle' urging some adventurous traveller to take ship for New Spain, mainly with the object of instituting another search for the tantalizing plant that had hitherto eluded our grasp. Yet all this while *Cuitlauzina pendula* was amongst us, and indeed had been an established favourite for upwards of twenty years! But if so, it may well be asked, how came it to pass that it was never recognized? For a full reply to this very natural inquiry I must refer the reader to a most ingenious article in 'Bonplandia' (Jahrg. iii. No. 15, 16), by the younger Reichenbach, to whom

all the credit is due of having solved a great botanical puzzle, and proved to demonstration that the *Cuitlauzina pendula* of Lexarza is none other than the *Odontoglossum citrosmum* of Lindley.*

Under these circumstances, however undesirable the meddling with established names, I scarcely see how, in common justice to Lexarza, we can do otherwise than adopt his specific name of *pendula*, more especially as it happens that the plant to which he originally gave it remains to this day the only one out of nearly a hundred *Odontoglossa* that has flower-stems which are strictly *pendulous.*

Our gardens contain many varieties of *O. pendulum*, of which, though all are beautiful, some are far superior to others. That represented in the Plate, and which forms a part of Mr. Rucker's collection, is among the best. Mr. Rucker keeps it in his coolest house, where it is perfectly at home, and produces a profusion of its lovely drooping racemes in May and June. It should always be grown in a pot.

DISSECTIONS.—1. Front view of lip and column; 2. Side view of ditto: *magnified.*

* The idea that *Cuitlauzina pendula* might possibly be identical with *Odontoglossum citrosmum* had more than once occurred to myself, but Lexarza's character of the flower-scape,—which he described as "*bracteis destitutus*,"—had always proved an insuperable difficulty. It seems, however, that the scapes of the other *Odontoglossa* that he met with happened to be entirely clothed with large inflated bracts; our present plant therefore, in which they occur only at long intervals and are exceedingly minute, may in comparison be said to be almost "destitute" of them.

Odontoglossum hastilabium.

W. H. Fitch del.

Vincent Brooks, Imp.

Plate VII.

ODONTOGLOSSUM HASTILABIUM, *Lindley.*

HALBERT-LIPPED ODONTOGLOSSUM.

O. (Isanthium, *Lindl.*) pseudobulbis ovatis compressis 1–2-phyllis, foliis oblongis coriaceis, paniculæ exaltatæ ramis spicatis, bracteis cymbiformibus acuminatis ovario æqualibus, sepalis petalisque lineari-lanceolatis acuminatis undulatis, labello apice subrotundo-ovato acuto basi auriculis acutis lanceolatis porrectis aucto, lamellis 5 elevatis, columnæ alis obsolete undulatis, margine versus basin membranaceo dilatato.

Odontoglossum hastilabium, *Lindley, Orchid. Linden. n.* 84; *Hooker, Bot. Mag. t.* 4272; *Pescatorea, t.* 11.

Habitat in Nov. Granada: Tesqua, in the province of Pamplona, at the elevation of 2500 feet, April, *Linden;* on the road from Santa Martha to the Sierra Nevada, *Purdie;* Ocaña, January, 5–6000 feet, *Schlim, Wagener, Blunt.*

DESCRIPTION.

Pseudobulbs *compressed, ovate,* 3 *to* 6 *inches long, bearing* 1 *or* 2 *oblong, leathery* Leaves, *not more than a third the length of the scape.* Bracts *boat-shaped, acuminate, equal in length to the ovary.* Scape *very robust, from* 2 *to* 6 *feet high, panicled, bearing from* 20 *to* 100 *flowers.* Sepals *and* Petals 1½ *to* 2 *inches long, linear-lanceolate, acuminate, slightly waved at the margin, of a pale-green, barred with numerous lines of dark-red or purple.* Lip *halbert-shaped, purple at the base, but white in its upper portion, which is of a roundish-ovate form, pointed at the extremity; its crest consists of* 2 *outer and* 2 *interior plates, the taller stretching forward beyond the former, with a linear-oval callosity in the centre.* Column *expanding at its base on either side into an inflexed membrane.*

As this stately *Odontoglossum* is met with at a much lower elevation than any of its congeners, it is constitutionally less impatient of heat, and has therefore been able to accommodate itself to artificial conditions under which others of its race in former years have pined and died. But although in some parts of New Granada it descends as low as 2500 feet, its more frequent range is 2000 feet higher up the mountains, and it is in such situations that it attains its greatest luxuriance and beauty. Some imported specimens that I was fortunate enough to see last year (1864) at the Clapton Nursery, whither they had been sent by Mr. Blunt, had flower-stems half an inch thick and fully 6 feet high. These were gathered at an elevation of at least 4000 feet above the sea-level and, as they arrived in excellent condition and have been extensively distributed, I have little doubt we shall ere long see cultivated specimens that may vie with the wild ones in stature and magnificence. Its flowering season is the spring or early summer.

The figure was taken in May last from a plant in Mr. Rucker's collection where it is grown at the coolest end of the Cattleya-house.

Dissection.—1. Front view of lip and column; 2. Side view of ditto: *magnified.*

W.H. Fitch, del. et lith. Vincent Brooks Imp.

Odontoglossum grande

Plate VIII.

ODONTOGLOSSUM GRANDE, *Lindley.*

GREAT ODONTOGLOSSUM.

O. (Xanthoglossum) pseudobulbis ovatis compressis diphyllis, foliis coriaceis oblongo-ensiformibus scapo simplici brevioribus, sepalis lanceolatis lateralibus convexis falcatis petalisque oblongis obtusiusculis latioribus subundulatis, labello subrotundo basi auriculato sepalis plus duplo breviore, disci cristâ apice truncatâ bituberculatâ utrinque in medio dente calloque auctâ, columnæ tomentosæ auriculis rotundatis convexis incurvis.

Odontoglossum grande, *Lindl. in Bot. Reg.* 1840, *Misc.* 94; *Bateman, Orchid. Mex. t.* 21; *Morren. Ann. Gand.* i. *t.* 37.
Habitat in Guatemala, *Skinner, Hartweg.*

DESCRIPTION.

Pseudobulbs *compressed, broadly ovate,* 2 *or* 3 *inches long, bearing* 1 *or more frequently* 2 *leathery, oblong-ensiform* Leaves, *which, as well as the pseudobulbs, have always more or less of a pale-glaucous hue.* Scape *twice the length of the leaves,* 4–8-*flowered.* Bracts *sheathing, acute, half the length of the ovary.* Flowers *very large, in some varieties* 7 *inches or more from the tip of expanded petals.* Sepals *lanceolate, the lateral ones convex and falcate.* Petals *wider than the sepals, and, like them, of a rich yellow colour, marked with large deep-cinnamon bands and blotches, oblong, somewhat obtuse at their extremities, and slightly waved at the margin.* Lip *not half the length of the sepals, nearly round, whitish, with a few crimson stains near the crest, which is of rich orange-yellow, marked with deep-orange spots, and is seated on the disk of the lip; it consists of* 2 *large truncate processes in front, with* 2 *or* 4 *small teeth at its base; its auricles turn their edges down until they meet under the disk of the lip, and there grow together.* Column *downy, with a rounded, incurved, convex auricle on either side.*

Mr. Skinner was the fortunate discoverer of this noble *Odontoglossum* which to this day remains unsurpassed, even among all the fine additions that have of late years been made to the genus. Mr. Skinner found it in a "barranca" (or dark ravine) in the environs of the city of Guatemala, and so closely had it lain concealed that even his quick eye failed to detect it until long after he had, as he thought, exhausted the district of all its finest Orchids. It was afterwards met with in other localities, but invariably in a climate of which the ordinary range of temperature lay between 60° and 70°, and in situations where it was secure of abundant moisture and constant shade. In these peculiarities of its natural habitat the conditions of its successful cultivation are clearly pointed out; yet, strange to say, they were unheeded for twenty years, during which the plants in our Orchid-houses were always in a feeble and sickly state, rarely producing more than two or three flowers on a scape, while the imported specimens showed that at least double that number was the proper quota. Now, however, the case is different, for with a mild temperature and moderate shade they are found to be managed with the most perfect ease and to grow with a vigour that could never have been exceeded in their native wilds. In proof of this we need only turn to the vignette, which is copied from a beautiful photograph kindly sent to me by Joshua Saunders, Esq., and which represents a specimen of *O. grande* as it appeared when flowering in his collection at Clifton. As a further evidence of the ease with which the plant may be grown I may mention that under the care of Major Trevor Clarke it has been induced to bloom in the open air during the summer months. This, however, must only be looked upon as an interesting experiment and is not recommended for imitation.

O. grande usually flowers in July or August, when the season's growth is nearly completed; after this it should

be allowed to rest. Mr. Fitch's drawing was taken from a handsome variety that flowered last year (1864) in a north house at Knypersley, and which had been given me by Mr. Skinner.*

Dissections.—1. Front view of column and labellum; 2. Side view of ditto: *slightly magnified.*

* Mr. Skinner has lately received from Guatemala some magnificent specimens of *O. grande,* which are incorporated with *masses of Fern* and other shade-loving plants. Cultivators might make a good practical use of the well-known maxim "*noscitur a sociis*" in this case.

Plant of *Odontoglossum grande* in the collection of Joshua Saunders, Esq., copied from a photograph taken by himself.

Plate 17

W.H. Fitch, del. et lith.

Vincent Brooks, Imp.

Odontoglossum nævium.

PLATE IX.

ODONTOGLOSSUM NÆVIUM, *Lindley*.

SPECKLED ODONTOGLOSSUM.

O. (EUODONTOGLOSSUM) pseudobulbis ovatis compressis, foliis tenuibus lanceolatis basi angustatis scapo racemoso vel subpaniculato multifloro nutante subæqualibus vel longioribus, sepalis petalisque angustis ovato-lanceolatis acuminatis undulatis, labello subconformi pubescente vix hastato, cristæ dentibus 2 grossis bi- vel subtrilobis pubescentibus, columnæ cirrhis subulatis patulis.

ODONTOGLOSSUM NÆVIUM, *Lindley in Paxton's Flower Garden*, i. *t.* 18; *Flore des Serres*, vi. 594; *Pescatorea, t.* 13; *Warner's Select Orchidaceous Plants, t.* 7; *Reichenbach fil. in Bonplandia*, ii. 278.

Habitat in VENEZUELA, *Funck and Schlim* (721), in the province of Truxillo, near S. Lazaro and La Peña, 6000 feet; NEW GRANADA, in the province of Pamplona, flowering in August, 8000 feet, *Linden* (146).

DESCRIPTION.

PSEUDOBULBS *ovate, compressed, somewhat bluntly ribbed, bearing* 1 *or* 2 *narrow-oblong* LEAVES, *tapering at the base, about equal in length to or more frequently shorter than the many-flowered flower-scape.* FLOWERS *arranged on a nodding raceme (occasionally a panicle is formed), pure white, speckled everywhere with rich crimson or brown.* BRACTS *very short, scale-like.* SEPALS *and* PETALS *ovate, linear-lanceolate, acuminate, spreading equally, much waved, from* $1\frac{1}{2}$ *to (in some varieties)* 2 *or* $2\frac{1}{2}$ *inches long.* LIP *shorter than the petals, but nearly of the same form and colour, except that there is a yellow crest with a large crimson blotch in its front; at its base the edges of the claw clasp the column.* TEETH *of the crest yellow, small, distinct, with* 2 *or* 3 *unequal blunt lobes to each, downy.* COLUMN *downy, narrowed to the base, with a pair of awl-shaped ears near the summit, below the anther-bed.*

This brilliant *Odontoglossum* was first discovered by the late Sir Robert Schomburgk, and having been shipped with his other collections from Demerara, has long been supposed to be a native of the latter colony. I am, however, satisfied that, beyond the circumstance alluded to, there is not the slightest reason for regarding it as a Demerara plant, for no other collector has ever found it there, nor would its constitution endure so hot a climate. As Sir Robert, in his memorable expedition into the interior of Guiana (1835-37), reached an elevation of 7000 feet, on the fourth parallel of latitude, and among the southern affluents of the Orinoco, I have little doubt that it was in this region that he discovered *O. nævium*, along with *Maxillaria eburnea*, *Diothonea imbricata*, and other treasures that have never yet found their way to us in a living state.*

O. nævium and its varieties appear to be extensively distributed, having been met with in many localities, both in Venezuela and New Granada, always, however, at a very considerable elevation, and hence the necessity of cool

* I copy Sir Robert's description of the locality in which these plants were found, in the hope that some collector may be induced to visit so interesting a region:—"The *Diothonea* was met with on the high mountain-chain between the sixty-fifth and sixty-sixth meridian and the fourth parallel of latitude, at an elevation of 6-7000 feet above the sea-level. The summits of those elevations are thickly covered with two species of Lichen, the white colour of which conveys the supposition that the ground is covered with snow. The thermometer stood frequently in the morning at 57° F., which, connected with the snow-white Lichens, powerfully reminded us of a winter landscape. Indeed, the stunted trees, with grey tortuous branches, would have assisted to make the picture complete, if numerous *Orchidaceæ*, conjointly with green Mosses, had not clothed them. Indeed, it was the *Orchidaceæ* alone that gave the vegetation a tropical aspect. . . . We discovered the *Maxillaria* near Mount Maravaca."—*Lindl. Sert. Orch. sub t.* xl.

treatment. If this be conceded, the plant is of the easiest culture and will flower abundantly in May or June. The figure was taken from a splendid specimen in Mr. Rucker's collection.

I do not think it necessary to adhere any longer to Dr. Lindley's distinction (as noted in the 'Folia Orchidacea') of a "major" variety, for this is now found to pass insensibly into the ordinary type. The former has sometimes been confounded with the *O. gloriosum* of Reichenbach, but this is a perfectly independent form, and as such will shortly be figured in this work.

Dissections.—1. Front view of lip and column; 2. Side view of ditto: *magnified.*

Fig. 1.

Fig. 2.

W H Fitch, del et lith.

Vincent Brooks, Imp

Odontoglossum carinatum.

PLATE X.

ODONTOGLOSSUM CARINIFERUM, *Reichb. fil.*

KEEL-PETALED ODONTOGLOSSUM.

O. (XANTHOGLOSSUM) pseudobulbis oblongis 1–2-phyllis, foliis loratis scapo paniculato brevioribus, sepalis petalisque oblongis acutiusculis basi subcuneatis dorso carinâ crassâ auctis pergameneis, labello membranaceo sessili ligulato dimidio anteriori subito in laminam reniformem denticulatam medio antice apiculatam extenso, lamellis rhombeis extrorsum biquadridentatis supinis utrinque in ligulâ labelli basilari, raphi utriusque lamellæ carinatâ antrorsum in tres digitos excurrente, columnâ elongatâ, alis elongatis crenulatis hyalinis inferioribus 2 utrinque obtusatis, crassioribus columnâ vix marginatâ. (*Reichb. fil. in Bot. Zeitung*, 1852, *p.* 638.)

ODONTOGLOSSUM CARINIFERUM, *Lindl. Fol. Orch.*
Habitat in AMERICA CENTRALI, *Reichenbach.*

DESCRIPTION.

PSEUDOBULBS 3 *or* 4 *inches long, oblong, smooth, bearing* 2 *broadish, leathery, sharp-pointed* LEAVES. SCAPE *longer than the leaf, panicled with zigzag branches.* BRACTS *triangular, short.* SEPALS *and* PETALS 1 *inch long, greenish outside, but of a purplish-brown inside, distinctly keeled at the back.* LIP *yellowish-white, sessile, ligulate at its base, but suddenly changing into a broad reniform plate, which is apiculate in front, and at its base adjoins the crest, which consists of* 2 *nearly prostrate, irregularly toothed, rhomboid lobes on either side, with* 3 *finger-like processes in front.* COLUMN *elongated, with transparent crenulate wings, its anther-bed scarcely margined.*

For the opportunity of figuring this pretty *Odontoglossum* I am indebted to the kindness of the Bishop of Winchester, in whose collection at Farnham Castle it flowered profusely in November last. A fortnight afterwards I also received specimens from Mr. Rucker, but the flowers of his variety were scarcely so bright in their colouring as those of the Bishop's plant.

O. cariniferum, although now figured for the first time, appears to have been introduced several years ago to German collections, and from some of these it has, no doubt, found its way to England. It is a native of Central America, where it probably affects a high elevation, as it succeeds perfectly under cool treatment, both at Farnham Castle and at West Hill. Its flowers continue in perfection for many weeks.

DISSECTIONS.—1. Front view of lip and column; 2. Side view of ditto: *magnified.*

Plate XI.

ODONTOGLOSSUM LINDLEYANUM.

DR. LINDLEY'S ODONTOGLOSSUM.

O. (Euodontoglossum, *Lindl.*) pseudobulbis ovato-oblongis compressis diphyllis, foliis lanceolatis subcoriaceis acutis scapo racemoso multi-(5–12)floro vix brevioribus, sepalis petalisque lineari-lanceolatis acuminatis subæqualibus, labello angusto unguiculato hastato utroque latere angulato in disco bifalcigero basi per carinam cum columnâ connato. Columna tomentosa, auriculis erectis angustis acuminatis.

Odontoglossum Lindleyanum, *Reichenbach fil.; Warsz. Bonpl.* ii. 69; *Reichenbach, Xenia Orch. t.* 71; *Walpers, Annales,* vi. *fasc.* 6.

Odontoglossum epidendroides, *Lindl. fil.* (*non Hb. Kth. N.G.*).

Habitat in Pamplona (in sylvis humidis), 8500 ft., *Linden;* Ocaña, 9000 ft., *Schlim;* Ocaña (*floribus majoribus*), *Wagener;* Bogotá, *Weir.*

DESCRIPTION.

Pseudobulbs *about* 3 *inches long, ovate-oblong, compressed,* 2*-leaved, sometimes a little spotted.* Leaves *lanceolate, from a span to a foot long, rather leathery, sharp-pointed.* Raceme *rather longer than the leaves, bearing from half-a-dozen to a dozen flowers.* Bracts *oblong, acute, about one-third the length of the ovary.* Sepals *and* Petals *nearly equal, an inch or more long, linear-lanceolate, acuminate, of a yellowish-green, with a few large chestnut blotches, the arrangement of which varies in different specimens.* Lip *shorter than the petals, narrow, unguiculate, hastate,* 3*-lobed; the lateral lobes forming two blunt angles, the middle lobe longer, linear-lanceolate, deflexed, with two large upright slightly-curved horns placed on either side of the disk; at its base the lip is keeled and united with the column after the fashion of the Trichopilias; its colour is usually a pale yellow or yellowish-white with large chestnut bands.* Column *downy, furnished near the summit with two narrow erect upright acuminate auricles.*

The name of this plant, associated as it is with the memory of the distinguished botanist who has lately passed from among us, is to me suggestive of the most melancholy reflections. Mourn indeed I must, the loss of one who had been my steady friend for five-and-thirty years, and by whose labours among the members of my favourite tribe, I have been enabled to follow a pursuit that has never ceased to be a joy and solace amid all the cares and vicissitudes of life!*

O. Lindleyanum was so named by Professor Reichenbach, in honour of the great Orchidist whose mantle seems now to have fallen upon himself. It is closely allied to the *O. epidendroides* of Humboldt and Kunth, from which indeed Dr. Lindley failed to distinguish it, but if the characters of the two species, as represented in the 'Xenia,' prove to be constant, no doubt the German Professor was right in separating them.

Several travellers, including Schlim, Wagener, Warszewicz, and Weir, appear to have met with the plant in various localities in New Granada, but always at a great elevation, hence it must of course be classed among the coolest section of Orchids. It has flowered in the gardens of the Horticultural Society, to which it was sent by their zealous collector Mr. Weir, and also in the collection of Mr. Rucker, where Mr. Fitch made his drawing in the spring of last year (1865).

Dissections.—1. Lip and column, seen sideways; 2. Ditto seen in front: *magnified.*

* I allude of course to those remarkable works of Dr. Lindley, the *Orchidearum Genera et Species* and the *Folia Orchidacea* (the latter of which he was not destined to complete), with which the science of Orchidology may be said to have arisen, and which will continue its text-books for all time to come.

Plate XII.

ODONTOGLOSSUM GLORIOSUM.

FINE ODONTOGLOSSUM.

O. (Euodontoglossum, *Lindl.*) pseudobulbis ovatis confertis diphyllis, foliis lato-lanceolatis acutis scapo valido paniculato multifloro brevioribus, sepalis petalisque oblongo-ligulatis acuminatis stellatis, labello a basi cordatâ ligulato acuminato, basin versus utrinque angulato, ceterum hinc illinc denticulato, callo depresso quadrilobulo nunc quadridentato ante basin, columnâ clavatâ apice utrinque cirrho setaceo medio inferne unidentato.

Odontoglossum gloriosum, *Reichenbach fil. Bonpl.* ii. 278; *idem in Gardeners' Chronicle* (*New Plants, n.* 293, 1865), *et in Walpers, Annales*, vi. *fasc.* 6.

Habitat in N. Granada, Soto. 8–9000 p., *Schlim;* Ocaña, 6000 p., *Wagener;* Bogotá, *Weir.*

DESCRIPTION.

Pseudobulbs *ovate,* 2*-leaved, growing closely together,* 3 *or* 4 *inches long, turning to a dark colour when old.* Leaves *broadly-lanceolate, acute, shorter than the stout much-branched many-flowered panicle.* Flowers *exceedingly variable in size and form and colour; the example in the Plate representing one of the largest varieties, and the vignette one of the least. Usually they are about* 2 *inches across, of a pale ochrish or greenish-yellow, blotched, or sometimes minutely spotted, with dark-chestnut.* Sepals *and* Petals *nearly equal, lanceolate, acute (often narrower than in the figure), slightly waved.* Lip *ligulate, smooth (not crisp) at the margin, very much attenuated in front, but heart-shaped at the base, towards which it is abruptly carinate, and furnished with* 2 *upright large sharp double teeth.* Column *clavate, with hairy cirrhi on either side near its apex, and a solitary tooth near the middle.*

This remarkable *Odontoglossum* was long since discovered in New Granada by Schlim and Wagener, in whose herbaria its stately many-flowered panicles formed so striking a feature that Professor Reichenbach did not hesitate to give the plant the name of *gloriosum;* an epithet which—now that we have the plant amongst us in a living state—may perhaps be thought to be somewhat beyond its merits. It must indeed be admitted that the fresh blossoms, which are of a faint yellowish-green, scarcely realize the expectations which the rich colour and profusion of flowers in the dried specimens had very naturally raised. Nor are all the varieties of equal merit, some being much smaller and paler than others.

The species has lately been imported in large quantities, both by Messrs. H. Low and Co., of Clapton, and by the Horticultural Society, who received it in 1864 from Mr. Weir, by whom it was gathered in the neighbourhood of Bogotá. It flowers freely, and at all seasons of the year; nor does it appear to care so much as many of its congeners for a few degrees more or less of heat or cold. I believe it has already bloomed in almost every collection of note; though the spikes, as was of course to be expected, are as yet far from equal to the wild specimens.* The figure was

* It may be well, once for all, to state that in the case of species that have not been long imported, and which have therefore not had time to acquire their full strength, the number and arrangement of flowers in the figures is taken from native specimens where such are available. It sometimes happens that the "wild" standard is never reached in cultivation, but it is more frequently exceeded.

taken from a plant in Mr. Day's garden, where I saw, in November last, nearly a dozen distinct varieties in blow, some of them rivalling the example given in the Plate, while others were as insignificant as that which is shown in the vignette. The blossoms continue fresh for at least a fortnight, and emit a pleasant honey-like scent.

DISSECTIONS.—1. Lip (*magnified*), seen sideways; 2. Ditto, seen in front.

Odontoglossum Warneri.

W. Fitch, del et lith. Vincent Brooks, Imp.

Odontoglossum stellatum.

Plate XIII. Fig. 1.

ODONTOGLOSSUM WARNERIANUM,

MR. WARNER'S ODONTOGLOSSUM.

O. (Leucoglossum, *Lindl.*) pseudobulbis subelongatis compressis monophyllis, foliis membranaceis oblongis in petiolum canaliculatum angustatis scapo 2–6-floro brevioribus, bracteis uncialibus acuminatis, sepalis lineari-lanceolatis acutis, petalis latioribus undulatis, labelli callo cuneato ovato, antice abrupte trilobo, lobis lateralibus angulatis, lobo medio forcipato bicruri, longiori, lateribus calli a basi versus apicem involutis, laminâ cordato-triangulâ obtusâ, margine minute crispulâ crenulatâ, columnâ gracili clavatâ apterâ.

Odontoglossum Warnerianum, *Reichenbach fil. in Mohl and Schl. Bot. Zeit.* 1864, 297; *idem in Gardeners' Chronicle*, 1865, *New Plants, n.* 294.

Habitat in Mexico (?).

DESCRIPTION.

Pseudobulbs *rather long and narrow, compressed, about* 3 *inches in length.* Leaves, *one on each pseudobulb, less than a span long, membranous, sharp-pointed, narrowed at the base into a channelled petiole.* Bracts *about an inch long, scariose, very acuminate.* Scape *longer than the leaves, only partially covered by the bracts, bearing from* 2 *to half-a-dozen flowers of a very delicate texture, and of snowy whiteness with the exception of the yellow crest on the lip and a few brown blotches on the lower half of the sepals and (though in a less degree) of the petals also.* Sepals *rather narrow, oblong, acute.* Petals *broader than the sepals and waved at the margin.* Lip *with a heart-shaped crenulate plate (occasionally suffused with a rosy tint), and a yellow* 3-*lobed callus at its base, the front portion of which is longer than the lateral ones (which are turned inwards from the base upwards), and split into two divergent members.* Column *slender, clavate, wingless.*

This pretty species was first described by Professor Reichenbach, from materials derived from the collection of Mr. Warner, of Broomfield, in compliment to whom he named it. It also flowered with the late Mr. Cauty, of Liverpool, who kindly sent me the specimens from which the figure was prepared, but these were smaller and less rich in their colouring than those of Mr. Warner.

We have no precise information as to the locality where *O. Warnerianum* grows wild, but there can be no doubt that it comes from some part of Mexico, whence we have other species, *e.g. O. Rossii, O. Ehrenbergii*, and *O. nebulosum*, to all of which it is nearly allied. It flowers in the later autumn and winter months, but like most of the other members of its section (*Leucoglossum*), is of a delicate habit, and requires to be very carefully handled. It seems to prefer a moderate heat and perhaps a slightly drier atmosphere than that in which the New Granada and Peruvian Odontoglossa evidently delight; the compost or materials in which the roots grow, should on no account be allowed to become sodden.

Dissections.—1. Lip and column (*magnified*), seen in front; 2. Ditto, seen sideways.

Plate XIII. Fig. 2.

ODONTOGLOSSUM STELLATUM.

STELLATE ODONTOGLOSSUM.

O. (Leucoglossum, *Lindl.*) pseudobulbis ovalibus compressis, foliis solitariis lanceolatis recurvis, scapis erectis 1–2-floris brevioribus, bracteis ovarii triquetri medium non attingentibus, sepalis petalisque æqualibus linearibus acuminatis herbaceis, labello rhomboideo subrotundo grosse dentato appendice unguis truncatâ quadridentatâ apice liberâ.

Odontoglossum stellatum, *Lindl. in Bot. Reg.* 1841, *Misc.* 25; *Fol. Orch. n.* 18.
Odontoglossum erosum, *Reichenbach fil. Bonpl.* ii. 99; *A. Rich. Gal. in Ann. Sc. Nat.* Jan. 1845.
Habitat in Guatemala, *Skinner;* Mexico, *Hartweg;* Veraguas, *Warszewicz.*

DESCRIPTION.

Pseudobulbs *oval, compressed, about an inch long, glossy, bearing solitary lanceolate somewhat recurved* Leaves, *which are shorter than the upright* 1-(*rarely* 2-)*flowered* Scapes. Bracts *not half so long as the three-cornered ovary.* Sepals *and* Petals *equal, linear, acuminate, of a dull olive-green, with a few faint transverse streaks of brown on their inner side.* Lip *white, rhomboidal, subrotund, with its edges eroded, and its unguis, or claw, hollow, truncate, free, and divided at top into two, or rather into four lobes, the two foremost of which resemble teeth.* Column *slender, wingless.*

There is an air of quaintness about this little *Odontoglossum* which, insignificant though it be, is spread over a range of territory far more extensive than is occupied by any other member of the genus; for it has been found in Mexico by Hartweg, in Guatemala (on the Volcan del Fuego) by Skinner, and in Veraguas by Warszewicz!

At Knypersley, where the figure was taken, the species flowers freely in the winter and spring, and is managed (in a cool house) without the slightest difficulty.

Dissections.—1. Column and lip (*magnified*), seen sideways; 2. Ditto, ditto, in front.

W. Fitch, del. et lith. Vincent Brooks, Imp.

Plate XIV.

ODONTOGLOSSUM ALEXANDRÆ.

PRINCESS OF WALES' ODONTOGLOSSUM (BLUNT'S VARIETY).

O. (Isanthium, *Lindl.*) pseudobulbis ovatis compressis 1- vel 2-phyllis, racemo simplici multifloro foliis subæquali, bracteis minoribus cochleatis acutis, floribus membranaceis pedicellis æquantibus, sepalis petalisque sæpius subæqualibus (interdum petalis multo latioribus), sepalis lanceolatis acuminatis petalis ovato-lanceolatis acutis undulato-laceris, labello breviore unguiculato formâ diversissimâ. nunc sepalis conformi nunc subpanduriformi, apice emarginato (sæpius mucrone adjecto) margine undulato integro vel sæpius dentato acuto apice recurvo, disco maculato, cristâ simplici bilamellatâ. Columna arcuata clavata, alata, alis laceris.

Odontoglossum Alexandræ, *Bateman in Gardeners' Chronicle*, 1864; *et in Proceedings R. Hort. Soc. p.* 186 (1864).
Odontoglossum Bluntii, *Reichenbach fil.*
Habitat in Nov. Granada, prope Pacho, 7–8000 p., *Weir*, *Blunt*.

DESCRIPTION.

An Epiphyte. Pseudobulbs *smooth, slightly compressed, sometimes broadly ovate, but occasionally tapering,* 2 *to* 3 *inches long, and bearing* 1 *or* 2 *linear lanceolate-pointed* Leaves, *which are from a few inches to a foot long, and frequently of rather lax character; a reddish tint is also sometimes met with both in the leaves and pseudobulbs.* Racemes *always simple, about the length of—sometimes longer than—the leaves, and carrying from two or three to a dozen or more large membranous and beautiful* Flowers, *which vary exceedingly both in size, form, and colouring. Usually they are from* 2 *to* 3 *inches in diameter, and about equal to the pedicels.* Bracts *about half an inch long, pointed, fitting close to the stem.* Sepals *lanceolate acuminate, white or rosy-white, with sometimes one or more brown or purple spots on each.* Petals *usually—though not invariably—wider than the sepals, and resembling them in form and colour, but destitute of spots; both in the sepals and petals the edges are usually more or less curled or waved.* Lip *recurved at the apex, exceedingly variable in its outline; in some examples almost exactly resembling the sepals in others taking more or less a panduriform shape (in which case the apex, instead of pointed, is round, emarginate, with a point or mucro); the edges too, which are sometimes entire, are much more frequently jagged or toothed; the short unguis, or claw, is longitudinally callose; and where it expands into the disk, ends in two straight pointed and diverging teeth, which, like the claw, are yellow, the rest of the lip being white, with or without spots of the same character as those found in the sepals; there are a few red or brown lines which radiate or spread out like a fan on either side of the teeth composing the crest, but they do not, as in* O. Pescatorei, *form a detached flap.* Column *short, arched, club-shaped, with broad truncate wings that are more or less jagged or fringed.*

This most charming *Odontoglossum* was discovered in 1863 by Mr. Weir, at an elevation of from 7000 to 8000 feet, in the gloomy forests that clothe the slopes of the lofty mountain-ranges at the rear of the City of Santa Fé de Bogotá. As the wild specimens of the flowers that he sent home to the Horticultural Society indicated not only a new species, but one of surpassing beauty, I did not hesitate at once to dedicate it to the illustrious Princess whose name it will henceforth bear. Since the first description of the plant appeared in the 'Gardeners' Chronicle' many living plants have been received both by the Royal Horticultural Society and by Messrs. Hugh Low and Co., of Clapton, several of which have bloomed and, even in their first feeble attempts to flower, have more than justified the very high expectations formed of the plant which, as it gathers strength, cannot fail to become an established favourite with all Orchid-lovers.

It proves to be a most variable species, and I am not surprised that my accomplished friend Professor Reichenbach should have considered the first examples sent to him from Clapton to differ so materially from those of *O. Alexandræ*, as described by myself, as to justify his regarding them as a distinct form, to which, in honour of Messrs. Low's very zealous collector, he gave the designation of *Bluntii*. Since then, however, so many intermediate varieties have made their appearance that it is clearly impossible to regard the two supposed species as really distinct.

Specimens of the plant have been sent to me by Messrs. Low, Mr. W. W. Buller, Mr. Rucker, Mr. Day, and Mr. Paterson; it has also flowered at Knypersley, but as yet no two specimens have been alike for, while some were beautifully spotted on the lip and petals with brown or crimson, others, with the exception of the golden crest on the labellum, were of the purest white. To the last-named class belonged the specimens grown by Mr. Buller and Mr. Paterson, the latter of which were so eminently lovely that they will form the subject of a separate Plate. Mr. Blunt's name may very properly be associated with the spotted variety now figured, and which was taken from a plant that he sent to his employers at Clapton.

O. Alexandræ is nearly allied to *O. crispum* and *O. Pescatorei;* but, independently of the structure of its flowers, differs from both in its invariably producing simple racemes instead of branched panicles. It flowers freely in the winter and spring months, and may apparently be cultivated with the greatest ease. Of course, coming as it does from a great elevation, it must not be kept too warm.

Dissections.—1. Lip and column (*magnified*), seen in front. 2. Ditto, ditto, seen sideways.

Plate XV.

ODONTOGLOSSUM REICHENHEIMII.

M. REICHENHEIM'S ODONTOGLOSSUM.

O. (Isanthium, *Lindl.*) pseudobulbis oblongis aggregatis diphyllis vix sulcatis, foliis oblongo-lanceolatis acutis scapo maculato laxe paniculato 3-plo brevioribus, bracteis brevibus membranaceis, sepalis petalisque subæqualibus oblongo-lanceolatis apiculatis, labello oblongo basi cordato apice obtusato lobulato, callo tumido utrinque ante basin, carinâ geminâ in imâ basi.

Odontoglossum Reichenheimii, *Reichenbach fil. in Bonpl.* iii. 214; *idem in Pescatorea, sub t.* 19; *Walpers, Annales,* vi. *fasc.* 6. *Lemaire in Illustr. Hortic. pl.* 213.

Habitat in Mexico, *Ghiesbreght.*

DESCRIPTION.

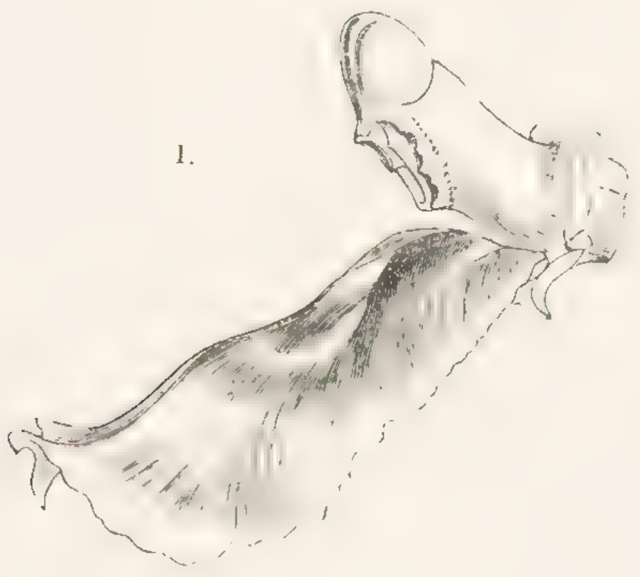
An epiphyte. Pseudobulbs *oblong, slightly furrowed, from* 2 *to* 4 *inches long, clustered together.* Leaves 2 *on each pseudobulb, shining and leathery, oblong-lanceolate, pointed, about a foot long, much shorter than the scape.* Scape *upright or nodding, from* 2 *feet to a yard high, spotted, loosely panicled, bearing from* 10 *to sometimes probably* 50 *flowers.* Bracts *few, short, and membranous, fitting close to the stem.* Sepals *and* Petals *nearly equal, oblong-lanceolate, apiculate, about an inch long, greenish-yellow, barred with dark purplish-brown.* Lip *purple in some varieties, in others white, with a horseshoe-shaped band of purple on its disk, oblong, rather blunt, and slightly lobed at the apex, somewhat heart-shaped at the base, where there is a callosity on either side, and a double carina.* Column *very slightly winged.*

This pretty species is well figured in 'Pescatorea,' where it is stated to be a native of Mexico, whence it was introduced by M. Linden, of Brussels. It was from his establishment that I derived the plant that is represented on the other side, and which flowered at Knypersley in May last (1865). It appears to be very easily managed, requiring the same temperature and treatment as *O. læve,* to which it is nearly allied, and which forms the subject of the following Plate. It is also very closely related to *O. Karwinskii;* and I do not feel certain that the two may not eventually have to be united. At present, however, so few plants of either kind exist in the collections of this country, that the materials necessary for an extensive comparison are not forthcoming.

The specific name was given by Professor Reichenbach in honour of M. Reichenheim, of Berlin, whose collection of Orchids and other plants has long been celebrated.

Dissections.—1. Side view (*magnified*) of lip and column; 2. Front view of ditto.

1.



2.

Vincent Brooks Imp.

Plate XVI.

ODONTOGLOSSUM LÆVE.

SMOOTH-LIPPED ODONTOGLOSSUM.

O. (Isanthium) pseudobulbis subcompressis sulcatis diphyllis, foliis oblongo-ensiformibus obtuse acutis apice obliquis, scapis multifloris brevioribus, floribus laxe racemoso-paniculatis, bracteis brevibus membranaceis, sepalis petalisque oblongo-linearibus acutis planis, labelli limbo panduriformi apiculato ungui lævi obsoletissime bidentato, columnæ alis apice rotundatis crispis basi planis. *Lindl.*

Odontoglossum læve, *Lindl. in Bot. Reg.* (1844), *t.* 39; *L. Fol. Orch. n.* 52.
Habitat in Guatemala, *Skinner.*

DESCRIPTION.

Pseudobulbs *from* 3 *to* 5 *inches long, ovate, subcompressed, furrowed,* 2-*leaved.* Leaves *sword-shaped, obtuse, or obtusely-acute, sometimes slightly oblique at their extremities, a foot or more long, shorter than the many-flowered flower-stems.* Flower-stems *loosely branched,* 2 *to* 3 *feet long, rather drooping, bearing from* 20 *to (sometimes)* 100 Flowers. Bracts *from half an inch to an inch long, sharp-pointed, clipping tightly hold of the stem.* Sepals *and* Petals *nearly equal, oblong-linear, acute, plane at the edges, usually about an inch long, light green, transversely banded with brown.* Lip *with a fiddle-shaped, apiculate limb doubled back on its unguis or claw, white, changing into purple at its base, where it is sometimes very obscurely bidentate.* Wings *of* Column *crisp at the edges, plane at the base.*

This is not one of the most attractive species, but its stately appearance the profuseness with which its flowers are produced and their pleasant aroma, will secure it a place in most collections. It is common in Guatemala, where Mr. Skinner originally discovered it, and it probably extends as far as Mexico, where the nearly allied species (*O. Reichenheimii*), figured in the preceding Plate, is found. As it is only met with at a great elevation, it must be treated as a very "cool" Orchid, under which *régime* it will flower abundantly in the spring months. The chief danger to be guarded against is that of its exhausting itself—like many species of *Phalænopsis*—by over-much flowering, and to prevent which it is of course only necessary to break off some of the scapes.

Dissections.—1. Lip, seen in front; 2. Lip and column, seen sideways: *magnified.*

Plate XVII.

ODONTOGLOSSUM LUTEO-PURPUREUM.

YELLOW AND BROWN ODONTOGLOSSUM.

O. (Euodontoglossum) pseudobulbis ovatis subcompressis diphyllis, foliis ensiformibus racemis multifloris nutantibus subæqualibus, bracteis ovatis acutis squamæformibus, pedicellis internodiis æquantibus, sepalis petalisque subæqualibus oblongo-lanceolatis acuminatis, labelli breviter unguiculati lateribus planis, limbo subpanduriformi antice lacero-serrulato, cristâ ad basin multidigitatâ, columnæ petalis triplo brevioris vix arcuatæ alis multifidis crinitis.

Odontoglossum luteo-purpureum, *Lindl. Orch. Linden. n.* 85; *Fol. Orch. n.* 7.

Odontoglossum radiatum, *Rchb. Gard. Chron.* (1864, *New Plants, n.* 307.)

Odontoglossom hystrix, *Bateman in Gard. Chron.* 1864, *New Plants, n.* 282.

Habitat in N. Granada, prope Quindiu, alt. 8000 p., *Linden;* prope Santa Fé de Bogotá, *Weir, Blunt.*

DESCRIPTION.

Pseudobulbs *about* 3 *or* 4 *inches long, somewhat compressed, ovate,* 2*-leaved.* Leaves *sword-shaped, sharp-pointed, a foot or more long, about the same length as the many-flowered nodding* Racemes. Bracts *ovate, acute, scaly.* Pedicels *equalling in length the average spaces between the* Flowers. Sepals *and* Petals *nearly equal, oblong-lanceolate (the petals sometimes unguiculate), acuminate, of a rich chocolate-brown inside, with edges and tips of a greenish-yellow.* Lip *with a very short claw, fiddle-shaped, at its side-edges plane, its centre-lobe minutely serrate and apiculate, with a multitude of finger-like processes (varying in different individuals) seated on the claw, and with their bristles all more or less inclining forwards. The upper portion of the lip is white, with a brown base, which again is banded with white beneath the series of bristles, which are of a rich golden-yellow.* Column *only one-third the length of the petals, slightly arched, with lacerated, hairy wings nearly concealing the anther.*

The vicissitudes which the name of this species has had to undergo within the last three years are full of instruction both to botanists and the public. It was first described by Lindley from wild specimens gathered by Linden in the neighbourhood of Quindiu. Mr. Weir was the next to meet with it, and he succeeded in sending to the Horticultural Society several living plants that had been obtained about 100 miles to the south of Bogotá. He also sent wild specimens in admirable condition which, not agreeing with Lindley's description, and being profusely furnished both at the base of the lip and in the apex of the column with long bristle-like appendages, led to my calling it *O. hystrix* (*i. e.* the Porcupine Odontoglossum). Messrs. Low also received the plant, through their collector Mr. Blunt, from the same locality as that where Weir met with it, and one of their plants produced flowers which—neither agreeing with Lindley's *O. luteo-purpureum* nor with my *O. hystrix*—received from Professor Reichenbach the name of *O. radiatum.* Subsequently many specimens flowered, no two of which were alike, though they all maintained a sort of distant family resemblance to *O. luteo-purpureum* of which—as the Professor himself was the first to point out—there can now be no doubt that they are all varieties.

The figure is taken from a plant that flowered in Mr. Day's collection in the autumn of 1865, the flowers of which were twice the size of those of a plant that flowered with me,—but still larger varieties have since appeared in the collections of Lord Egerton of Tatton and Mr. Wentworth Buller.

The species, being found at an elevation of 8000 feet or more, requires very "cool" treatment, and should be referred to what—for reasons stated under Plate XX.—I propose to call the "Peruvian house." In this it is very easily grown, and flowers freely.

The markings in the dried specimens being much deeper than in the fresh flowers, led Dr. Lindley to give it a name (*O. luteo-purpureum*) which is scarcely applicable to any variety that has yet appeared,—no *purple* tints having been observed.

Dissections.—1. Front view of lip and column; 2. Side view of ditto: *magnified.*

W.H. Fitch del et lith

Vincent Brooks Imp

Odontoglossum Bictoniense.

Plate XVIII.

ODONTOGLOSSUM BICTONIENSE.

THE BICTON ODONTOGLOSSUM.

(VARIETY WITH LEAFY FLOWER-STEMS.)

O. (Leucoglossum) pseudobulbis oblongis compressis 2–3-phyllis, foliis ensiformibus undulatis patentibus scapo racemoso duplo brevioribus, bracteis herbaceis lanceolatis acuminatis ovario duplo brevioribus, sepalis petalisque subæqualibus lineari-lanceolatis maculatis, labelli ungue bilamellato limbo cordato acuminato undulato, columnæ alis transverse oblongis integris.

Cyrtochilum Bictoniense, *Bateman, Orch. Mex. et Gua. t.* 6.
Zygopetalum Africanum, *Bot. Mag. t.* 3812.
Habitat in Guatemala, *Skinner;* circa 6–7000 ped. alt.

DESCRIPTION.

Pseudobulbs *oblong,* 3 *to* 6 *inches long, somewhat compressed, bearing* 2 *or* 3 Leaves, *which are sword-shaped, spread open, much shorter than the upright purple many-flowered* Scape. *The latter, in its normal state, is unbranched, and destitute of leaves, but in the variety represented in the Plate has numerous branches, and is leafy at the extremities.* Bracts *herbaceous, lanceolate, acuminate, not half the length of the ovary.* Sepals *and* Petals *nearly equal, linear-lanceolate, light-green spotted, or banded with brown.* Lip *with a bilamellate claw and a heart-shaped, acuminate limb, waved at the margin. In most cases the lip is white or nearly so, in others it has more or less of a rosy or purplish tint.* Column-wings *transversely oblong, entire.*

The Plate represents a remarkable state of this now well-known plant, which I have observed only in the collection of Mr. Aspinall Turner, of Pendlebury House, near Manchester. In its normal or ordinary condition *O. Bictoniense* produces—in the winter months—simple, upright flower-stems, but in Mr. Turner's plant the stems are branched, and, what is still more extraordinary, are *leafy* at their extremities! Nor was this peculiarity confined to the growth of a single season, for it has already reappeared at least three years in succession! It produces a very singular effect, though it can hardly be said to add to the beauty of the plant.

O. Bictoniense, so called after Lady Rolle, of Bicton, in Devonshire, was the earliest species of this popular genus that ever reached England alive. It also formed a portion of the first box of Orchids that I ever received from Guatemala, whence they were sent to me in 1835 by my invaluable friend George Ure Skinner, now (1867) alas!—most suddenly and unexpectedly—numbered with the dead!

This is not the place for a memoir of that generous and enthusiastic spirit;—let it suffice to state that Mr. Skinner was on his way to Guatemala for a final visit, when he was attacked by yellow-fever early in February last on the Isthmus of Panama, and carried off after three days' illness! He was collecting plants on the Saturday before his death, and on the Wednesday he was a corpse! He was in his 63rd year, and had he but been permitted to return to England, would have crossed the Atlantic exactly forty times! He was the discoverer of *O. grande* and *O. Uro-Skinneri,* already figured in this work, and of at least fifty other Orchids, including the well-known *Lycaste Skinneri* perhaps the most useful and popular of its tribe.

Dissections.—1. Lip and column, seen sideways; 2. Ditto ditto, seen in front: *magnified.*

W Fitch, del et lith

Vincent Brooks, Imp

[illegible] 's variety)

PLATE XIX.

ODONTOGLOSSUM ALEXANDRÆ.

PRINCESS OF WALES' ODONTOGLOSSUM

(WHITE, OR WEIR'S VARIETY).

Of this charming Odontoglossum, which I had the honour to dedicate to H.R.H. the Princess of Wales, there appear to be innumerable varieties. Of these some—like the one figured at Plate XIV.—have crimson spots, others again are spotted with brown, while a third section—like the one represented in the Plate—have flowers of the purest white, relieved only by the rich golden crest of the lip. An excellent example of the latter variety was sent to me nearly two years ago by Mr. Paterson, of Ashville, Partrickhill, near Glasgow, and from this Mr. Fitch's drawing was obtained. Since then, other specimens of the same kind have been communicated to me, especially by Mr. Wentworth Buller, Mr. Jones, of Whalley Range, near Manchester, Mr. Bull, and Mr. Dawson of Meadow Bank. The last was an admirable specimen bearing as it did on a curved stalk about a dozen perfect flowers, all of which faced the same way, so as to form a sort of natural tiara exactly suited to a lady's head and which—especially when worn on dark hair—could not fail to produce a most beautiful effect.

This variety has also flowered at the Royal Gardens, Kew, a fact that is not a little creditable to Mr. Smith's (the Curator's) energy and skill, he being compelled to grow his Orchids in houses that are very ill adapted to such a purpose. Surely the Government of this wealthy country might afford to devote a few hundred pounds to the construction of houses in which these most popular and marvellous plants might be worthily grown!

As the first specimens of the *white* variety of *O. Alexandræ* were collected by Mr. Weir, it is only fitting that his name should be associated with it, just as the name of his rival Mr. Blunt has been connected with the variety distinguished by its crimson spots. Plants of both frequently acquire a reddish tint both in their bulbs and leaves, a tint which, wherever it occurs, is a sure criterion by which *O. Alexandræ* may be distinguished from other Odontoglossa that closely resemble it in habit.

O. Alexandræ proves to be a slow grower, and to require the coolest compartment of the Peruvian house. If this condition be attended to, it gives no trouble whatever, and produces its exceedingly durable flowers very freely indeed.

Dr. Triana met with it on the trunks of very large trees with dense foliage, ten leagues from Bogotá, and also at Pacho.

DISSECTIONS.—1. Lip and column, seen in front; 2. Ditto, seen sideways: *magnified.*

W Fitch, del et lith

Odontoglossum maculatum

Plate XX.

ODONTOGLOSSUM MACULATUM.

SPOTTED ODONTOGLOSSUM.

O. (Xanthoglossum) pseudobulbis oblongis compressis monophyllis, foliis oblongis nervosis acutiusculis, racemis subpendulis multifloris brevioribus, bracteis navicularibus herbaceis ovario brevioribus, sepalis lineari-lanceolatis acuminatis discoloribus, petalis oblongis undulatis acuminatis, labello cordato acuminato subcrenato, appendice unguis bivalvi concavâ cochleari apice liberâ bidentatâ per medium argute serrulatâ, columnâ pubescente subapterâ. *Lindl.*

Odontoglossum maculatum, *Llave, Orch. Mex.* 2, 35; *Bot. Reg.* 1840, *t.* 30; *Pescatorea, t.* 28; *Lindl. Fol. Orch.*
Habitat in Mexico, *Lexarza, Barker, Karwinski.*

DESCRIPTION.

Pseudobulbs *narrow, oblong, much compressed, from* 2 *to* 4 *inches long,* 1-*leaved.* Leaves *lanceolate-oblong, nervose, more or less sharp-pointed, shorter than the flower-scapes.* Bracts *boat-shaped, acuminate, the lower ones shorter than the upper ones, nearly as long as the ovary.* Racemes *nodding, sometimes pendulous,* 5- *to* 12-*flowered, about a foot long.* Flowers *variable in size and colour, which is sometimes a brightish at other times only a greenish-yellow, spotted with brown.* Sepals *brown inside, linear-lanceolate, acuminate.* Petals *rather wide, oblong, waved, acuminate.* Lip *heart-shaped, acuminate, slightly crenate, with a two-cleft process forming a pair of blunt teeth at the upper end of the claw.* Column *pubescent, clavate, wingless.*

This plant is common in many parts of Mexico, especially on the Irapæan mountains in the neighbourhood of Valladolid, where it was originally discovered and described by Lexarza, that earliest of Orchid-devotees! It was also one of the earliest species of the extensive genus to which it belongs that ever produced flowers in England. The credit of introducing it belongs to the late Mr. Barker, of Birmingham, with whom it bloomed about the year 1839, but it soon disappeared, like nearly the whole of the invaluable collection of Mexican Orchids that I remember having seen in the most splendid condition, shortly after their arrival, in his stoves. Fifteen years afterwards it was re-introduced by M. Linden, from whose establishment the figure in '*Pescatorea*' was obtained, but it seems to have again been lost. Last spring (1866) I had the pleasure of seeing the species in the best possible health in Mr. Dawson's rich and admirably-managed collection at Meadow Bank near Glasgow, and from his plant, which flowered in April, Mr. Fitch's drawing was prepared. I also received specimens about the same time from Mr. Turner. Still more recently, Messrs. Hugh Low and Co. have imported it in large quantities and excellent condition, and many good varieties have already appeared, though none that I have yet seen are so fine or so richly coloured as that of Mr. Dawson. One that is now flowering at Knypersley is a dull yellowish-green.

In its native country it flowers in March, which is about the time of its flowering with us. As to treatment it will naturally be found more at home in the Mexican house, where a cool and comparatively dry atmosphere should be maintained, than in the Peruvian house, which should be suited to the species that are accustomed to a damper and—not unfrequently—still cooler climate. I have no doubt that this distinction will be found of much practical utility, for although "cool treatment" as opposed to "warm" marks a very important division still, just as among "warm" plants it is necessary to separate the East Indian Aerides from the Brazilian Cattleyas, so among "cool" plants it will be

advisable to separate the Mexican Lælias from the Peruvian Odontoglossa. Nay, I apprehend that what I call the "Peruvian house" will itself have to be subdivided into two portions, one of which, *i. e.* the warm portion, will contain such plants as the Trichopilias, the Anguloas, and such Odontoglossa as are met with below 6500 feet, while the other or cooler portion will be suited to an innumerable multitude of glorious Orchids that are met with at a still higher elevation. Already cultivators have discovered that *O. Phalænopsis* and *O. nævium* cannot be made to thrive in the same house, for though both are "cool" plants the former—coming as it does from a lower level—requires a decidedly warmer climate than the latter, and so it will be in many other cases which are not yet so distinctly understood.

Dissections.—1. Lip and column, seen sideways; 2. Front view of ditto: *magnified*.

PLATE XXI.

ODONTOGLOSSUM HALLII.

COLONEL HALL'S ODONTOGLOSSUM.

O. (EUODONTOGLOSSUM, *Lindl.*) pseudobulbis ovatis, ancipitibus 1–2-phyllis, foliis ensiformibus in basin angustatis, racemo multifloro (raro sub-paniculato), sepalis petalisque ovato-lanceolatis unguiculatis labello oblongo acuminato lacero, cristâ baseos lamellatâ multifidâ, columnæ alis dente superiore aristato.

ODONTOGLOSSUM HALLII, *Lindl. in Bot. Reg. sub t.* 1992, *et Folia Orchid.*; *Reichenbach fil.* Xenia, i. 63; *Walpers Annales*, vi. p. 828.
Habitat in PERU (western declivity of Pichincha), *Hartweg*; Valley of LLOA, at elevation of 8000 ft., *Col. Hall*; N. GRENADA in forests of Pamplona, 8500 ft., *Linden*.

DESCRIPTION.

PSEUDOBULBS *ovate,* 2 *to* 4 *inches long, compressed,* 2-*edged, bearing generally one, occasionally two, lanceolate* LEAVES, *a foot or more long.* RACEME *many* (10–20) *flowered, occasionally though rarely branched,* 2 *to* 3 *feet long.* SEPALS *and* PETALS *nearly equal, ovate-lanceolate, exceedingly unguiculate, from an inch to* (*in some varieties*) *an inch and a half or even* 2 *inches long, yellow with large, often very dark, blotches of purplish-brown.* LIP *white, with a few rich spots, oblong-acuminate, jagged at the edges, with a large and handsome yellow* CREST, *consisting of a multitude of flattened but sharp-pointed teeth, pointing sideways and downwards.* COLUMN *white, winged, the wings broken into teeth or cirrhi, of which the uppermost is much the largest.*

This fine *Odontoglossum* was one of the earliest known though one of the latest to reach us alive. It is now (1873) plentiful enough, and forms a most attractive object in our spring Orchid-shows. There are many varieties differing greatly in the size and marking of their flowers, but all maintaining the unguiculate sepals and petals which chiefly distinguish it from *O. luteo-purpureum* (Pl. 17), to which it is indeed very nearly allied. *O. Hallii* is abundant in New Grenada and Peru, but is seldom met with at a lower elevation than 8000 feet, hence it is quite at home in the coolest part of the "cool Orchid-house," in which it grows and flowers very freely indeed.

In the woodcut, a solitary flower of a larger variety of the species is represented, natural size.

W.H.Fitch del. et lith.

Vincent Brooks Day & Son Imp.

PLATE XXII.

ODONTOGLOSSUM ROSEUM.

ROSY ODONTOGLOSSUM.

O. pseudobulbis ovatis ancipitibus 1-phyllis, foliis oblongo-lanceolatis racemo gracili multifloro duplo brevioribus, bracteis ovatis concavis subangulatis pedicellis duplo brevioribus, sepalis petalisque lanceolatis, labello trilobo basi bilamellato: lobis lateralibus nanis rotundatis intermedio obcuneato acuto, columnâ elongatâ apice alis 3 membranaceis integris auctâ.

ODONTOGLOSSUM ROSEUM, *Lindl. in Bentham Plant. Hartweg*, p. 251. *Reichenbach fil. in Garden. Chron. April* 20, 1867.
Habitat in PERU, *Backhouse*, Nuebrada de los Juntas, *Hartweg.*

DESCRIPTION.

PSEUDOBULBS *ovate, two-edged, much compressed, dark-coloured, from one to two inches long, carrying a short solitary oblong-lanceolate leaf.* LEAVES *very sharp-pointed linear-lanceolate, not half the length of the slender nodding graceful many-flowered* RACEMES. BRACTS *ovate, slightly angular, much shorter than the* PEDICELS. SEPALS *and* PETALS *nearly equal, lanceolate, acuminate, linear, two-thirds of an inch long, of a beautiful bright rose colour.* LIP *about same length as the petals, pale whitish rose, three-lobed, bilamellate at the base, side-lobes rounded, very small, intermediate lobe sharp-pointed, obcuneate.* COLUMN *standing forward, rounded, provided at its apex with three membranous wings.*

A charming little species long known by the specimens in the Lindleyan Herbarium. It was introduced—though in very limited quantities—by the Messrs. Backhouse several years ago, since which time it has always continued scarce. In Lindley's Herbarium the racemes are about the length of those represented in the figure, but in a specimen exhibited in 1872 by Mr. Linden the pseudobulbs, leaves, and racemes were nearly twice as large and as long as those in the Plate. The precise treatment that it affects has not yet been distinctly ascertained, but there can be no doubt that, being a denizen of high places on the mountain ranges in Peru, it prefers the coldest house.

Odontoglossum triumphans

Plate XXIII.

ODONTOGLOSSUM TRIUMPHANS.

SPLENDID ODONTOGLOSSUM.

O. (Xanthoglossum, *Lindl.*) pseudobulbis ovatis 1–2-phyllis foliis lato lanceolatis acutis, basi attenuatis, racemo multifloro, bracteis triangularibus ovario pedicellato 4–5plo brevioribus, sepalis oblongo-acutis basi bene attenuatis, petalis subæqualibus latioribus, magis acuminatis, utrinque hinc illinc lobulatis, labello unguiculato basi bifalci, utrinque bicalloso laminâ panduratâ apiculatâ, columnæ alis rhombeis ascendentibus margine externo erosulis.

Odontoglossum triumphans, *Reichenbach fil. Bonpl.* ii. 99; *Walpers Annales*, vi. p. 831; *Pescatorea, t.* 46.
Habitat in N. Grenada, *Warscewicz.* Ocana, 6000-8000 feet, *Schlim, Wagener.*

DESCRIPTION.

Pseudobulbs *ovate, very similar to those of* O. Hallii, *bearing generally two stout sharp-pointed* Leaves *a foot or more long.* Raceme *many-*(6–18) *flowered, half a yard or* 2 *feet long, rather drooping.* Bracts *small and triangular,* 4 *or* 5 *times shorter than the ovary.* Sepals $1\frac{1}{2}$ *to* 2 *inches long, oblong-acute, narrowed at the base.* Petals *about the same size as the sepals, but broader and more acuminate, sometimes diversely lobed on either side like the sepals, nearly covered with rich chestnut blotches on a bright yellow ground.* Lip *white with deep reddish blotches at apex, shorter than petals, unguiculate, pandurate, partially connate with the column, toothed at the edges, bicarinate at base, provided with* Crest *consisting of two sets of falcate teeth, extending about one-third of its own length.* Column *white, half the length of the lip, furnished with upright rhomb-like wings the edges of which are indented.*

This is a very fine species indeed, although it scarcely realizes the expectations excited by the figure in *Pescatorea,* whether as regards the size of the individual blossoms or their colour. In the fresh flowers the prevailing tone is a bright yellow, which serves as a foil to the rich brown or chestnut marking with which the sepals and petals are profusely covered, and which, though to a lesser degree, cover also the lip. But in *Pescatorea* the lip is represented as white, and as bearing at its upper extremity a rich blotch of bright purple which affords a beautiful contrast to the yellow and brown tints of the other parts of the flower. Probably the figure referred to may have been prepared from dried specimens and hence the mistake as to the colouring.

There are many varieties of this species, some of the best of which were exhibited by Mr. Marshall of Enfield at a meeting of the Royal Horticultural Society as early as April, 1869.

O. triumphans does not appear to be so plentiful in its native habitats as *O. Hallii, O. lutea-purpureum,* and many other N. Grenada kinds that now swarm in our collections. The range of elevation within which it grows is nearly identical with that of *O. Hallii,* hence the same treatment is suitable to both. It is easily grown and flowers freely.

1. 2.

1. Front view of lip and column; 2. Side view of ditto: *magnified.*

PLATE XXIV.

ODONTOGLOSSUM KRAMERI.

KRAMER'S ODONTOGLOSSUM.

O. pseudobulbis suborbicularibus valde compressis ancipitibus 1-phyllis, foliis oblongo-lanceolatis, scapis ascendentibus vel sub-pendulis foliis brevioribus pauci-(2–5) floris, sepalis petalisque oblongis acutis subæqualibus, labelli ungue 2-calloso laminâ subquadratâ 2-lobâ pallide-roseo-violaceâ plagâ basi utrinque semilunari albâ aureo et purpureo maculatâ.

ODONTOGLOSSUM KRAMERI, *Reichenbach fil. in Gard. Chron.* 1868, p. 98. *Floral Mag. t.* 406 (*sub O. Krameri*). *Hooker in Bot. Mag. t.* 5778.

Habitat in COSTA-RICA.

DESCRIPTION.

PSEUDOBULBS *nearly round, flattened,* 2-*edged,* 1-*leaved ;* LEAVES *oblong-lanceolate, less than a foot long, by about an inch wide, longer than the* SCAPES *which bear from* 2 *to* 5 *flowers.* PEDUNCLES *with the ovary one to one and a half inches long.* FLOWERS *one to one and a half inches in diameter.* SEPALS *and* PETALS *subequal oblong-acute, pale violet-red in the centre with broad white margins.* LIP *one-third of an inch wide, neck short, broad, deeply hollowed in front with two erect calli; limb subquadrate, two-lobed at the apex, angles rounded, the basal lateral lobes small, reflexed, pale violet-red with two confluent semilunar white patches at the base, on each of which is a concentric red-brown band, and a few spots of the same colour on a golden yellow ground.* COLUMN *short, thick, without wings or appendages.* (Hooker, l. c.)

This though not a striking is a very distinct plant. It is a native of Costa-Rica, where it seems to be plentiful enough though it long eluded detection. It was first exhibited in 1868 by Mr. Veitch at one of the shows at S. Kensington, but appeared almost simultaneously in the collection of Mr. Day, by whose direction a careful drawing was prepared. Like other Costa-Rica plants, though not requiring a high temperature, it is scarcely content with the small amount of heat that is now allotted to the great majority of cool Orchids. Its proper place would be in the Mexican House. It is a free bloomer.

Plate XXV.

ODONTOGLOSSUM CORDATUM.

HEART-LIPPED ODONTOGLOSSUM.

O. (Euodontoglossum) pseudobulbis oblongis compressis monophyllis, foliis lato-oblongis planis acutis scapo squamis carinatis vaginato brevioribus, racemo simplici vel paniculato, bracteis navicularibus acuminatis membranaceis, ovario multo brevioribus, sepalis petalisque lineari-lanceolatis acuminatissimis, labello cordato acuminatissimo integerrimo, appendice unguis carnosâ apice bilobâ basi utrinque dente unico auctâ, columnâ pubescente clavatâ sub-apterâ.

Odontoglossum cordatum, *Lindl. in Bot. Reg.*, 1838, *misc.* 90; *Knowles and Westcott, Floral Cabinet, t.* 100; *Paxton's Mag.*, xiii. 147; *Regel. Garten-flora*, 1862, 356; *Pescatorea*, i. 26.

Habitat in Mexico, *Barker*. Guatemala, *Hartweg, Skinner*.

DESCRIPTION.

Pseudobulbs *oblong, very much compressed and very sharp at the edges,* $1\frac{1}{2}$ *to 2 inches long.* Leaves *one (rarely if ever two) on each pseudobulb and broadly-oblong acute shorter than the scape.* Scape *and* Raceme *sheathed at intervals with long keel-shaped membranaceous* Bracts, *few or many flowered, simple or (more rarely) branched, from one to two feet high.* Sepals *and* Petals *nearly equal, linear-lanceolate, extremely acuminate, an inch or more long, greenish-yellow richly blotched with brown.* Lip *shorter than the sepals heart-shaped, with a very acuminate slightly recurved apex, white with dark brown spots and a purplish 2-lobed callus at the base.* Column *pubescent, club-shaped, almost wingless.*

Though scarcely to be classed among the more attractive species, *O. cordatum* is occasionally seen at our Shows with branching scapes 2 feet high and flowers much more richly coloured than those in the Plate. It is found both in Mexico and Guatemala (whence plants were sent to me by my lamented friend Skinner), but always at high elevations.

It flowers in the early summer without any special treatment, except that it is perhaps more impatient of water than some of its congeners.

Plate XXVI.

ODONTOGLOSSUM ANGUSTATUM.

NARROW-PETALLED ODONTOGLOSSUM.

O. (Isanthium) pseudobulbis ovato-oblongis compressis, foliis longis lato-lanceolatis erectis acutis paniculâ ramosâ elatâ brevioribus, bracteis carinatis acutis ovario multò brevioribus, sepalis petalisque subæqualibus undulatis unguiculatis, labello ovato-lanceolato acuminato reflexo, cristæ lamellis lateralibus membranaceis trifidis, digitis anterioribus majoribus, callo obtuso interposito, columnâ apterâ.

Odontoglossum angustatum, *Lindl. in Bot. Reg. sub* t. 1992, *Folio. Orchid.*, 48; *Rchb. fil.*; *Walper's Annales,* vi. p. 841.
Habitat in Peru, (alt. 8000 ft.,) *Hall, Hartweg, Linden.*

DESCRIPTION.

A very stately plant. Pseudobulbs *ovate-oblong compressed,* 2 *or* 3 *inches long,* 1 (*or ?* 2) *leaved.* Leaves *one to one and a half feet long, linear-lanceolate acute, shorter than the upright branching zigzag many-flowered* Panicles. Bracts *keeled, acute, much shorter than the ovaries.* Sepals *and* Petals *nearly equal, unguiculate, acuminate, undulated, white with beautiful purple spots on their lower portions.* Lip *white, or nearly so, shorter than the petals, ovate-lanceolate, the apex acuminate and exceedingly recurved, having at its sides two membranous lamellæ, divided into three unequal parts, those in front the larger and projecting forwards like horns or fingers with a blunt callus lying between them.* Column *not half the length of the lip, and destitute of wings.*

This is a very distinct species, as remarkable among *Odontoglossa* with its white and purple flowers, as is *Oncidium incurvum,* with blossoms of similar hues, among the innumerable members of that still more extensive genus. Although originally discovered by Colonel Hall more than a quarter of a century ago, no genuine plants—there have been impostors in plenty—seem to have reached Europe alive before the year 1871, when it was introduced by M. Linden; by whom also, in the following spring, flowering specimens were exhibited at South Kensington and universally admired. According to Lindley, the species is nearly allied to his *O. ramosissimum,* from which, indeed, he at one time failed to distinguish it. M. Linden's plant, which is faithfully rendered in Mr. Fitch's drawing, does not exactly answer to the descriptions in the Folia Orchidacea either of *O. angustatum* or *O. ramosissimum,* but is apparently a connecting link between the two, whence I infer the probability that both the above supposed species will eventually be found to be one and the same.

The plant is still exceedingly scarce, and as it is indistinguishable in habit from many other *Odontoglossa* derived from the same rich country (Peru), I would warn cultivators against purchasing any specimens that have not actually proved themselves to be true. It belongs to the cooler sections of its race, and must be treated accordingly.

Plate XXVII

Odontoglossum coronarium

Plate XXVII.

ODONTOGLOSSUM CORONARIUM.

ROYAL ODONTOGLOSSUM.

O. (Trymenium) rhizomate caulescente, pseudobulbis brunneis ovalibus compressis monophyllis, foliis rigidis coriaceis basi canaliculatis acutis racemo multifloro dense racemoso subæqualibus vel longioribus, bracteis linearibus canaliculatis ovario triplò brevioribus, sepalis petalisque subrotundis unguiculatis planis margine crispis, labello longè cuneato retuso basi auriculis unidentatis subfalcatis obtusis subtus in unam connatis acuto, inter auriculas tuberculis duobus hoc didymo illo inferiore simplici; clinandrio subserrato lobis rotundatis (*Lindl.*)

Odontoglossum coronarium, *Lindl. Folia. Orchid.*; *Linden, Pescatorea*, t. 47.

Habitat in N. Grenada, *propè* La Baja, Pamplona, (alt. 7000 ft.,) *Schlim.*

DESCRIPTION.

A stout and rigid plant. Pseudobulbs *oval, compressed,* 3 *or more inches long, of a brownish hue, placed at intervals on a stiff caulescent* Rhizome. Leaves *one on each pseudobulb, leathery, sharp-pointed, channelled near the base, a foot or more long, equal to or longer than the flower-scapes.* Bracts *linear channelled, only one third the length of the ovary.* Racemes *about a foot high, upright, bearing from a dozen to twenty flowers in a dense mass.* Sepals *and* Petals *equal, subrotund, unguiculate, smooth, with their margins crisp or curled, about an inch long, of a rich reddish coppery brown on the upper surface, shining as if they had been varnished, yellowish underneath.* Lip *yellow, retuse, about same length as the petals, obovate, rounded at apex, narrowed and wedge-shaped at the base, where the sides arrange themselves into two narrow blunt falcate horns which are united on the under side.* Crest *consisting of three processes.* Column *slightly curved with two truncate rounded wings.*

This species has been long known, but it was slow in making its appearance, and slow likewise in flowering after it had reached us. During the last four years both Messrs. Veitch and M. Linden have succeeded in importing it alive, but it has only produced flowers in two or three instances; the finest specimens I have seen being those exhibited by Lord Londesborough during the present spring (1874). Even in its native country it seems to be a shy flowerer. As it is never met with lower than 7000 feet on the mountains of Pamplona, it of course requires a cooler treatment than many of its congeners which affect a lower level. The shining surface of the sepals and petals is very remarkable, and has the appearance of being due to a coat of the best varnish. Another species, *O. brevifolium*, found in lofty mountains in Peru, is closely allied to this, if indeed, which I greatly doubt, it be anything more than a very high-level variety of it.

Plate XXVIII

Odontoglossum blandum

PLATE XXVIII.

ODONTOGLOSSUM BLANDUM.

PLEASANT ODONTOGLOSSUM.

O. (EUODONTOGLOSSUM) pseudobulbis ovatis 1–2-phyllis, foliis lineari-lanceolatis acutis racemis multifloris subæqualibus, sepalis petalisque cuneato-lanceis acuminatis; labelli ungue bilamellato, lamellis oblongis antice obtusangulis, laminâ ab ungue cuneato velutino ampliato ovatâ acuminatâ crispulâ, cornubus brevibus geminis ante lamellas, antepositis falcibus geminis, tumore parvo interjecto; cirrhis columnæ basi angulatæ bifidis setaceis.

ODONTOGLOSSUM BLANDUM, *Rchb. fil. in Gardeners' Chronicle*, p. 1342 (1872).
Habitat in OCAÑA, *Blunt, Roezl.*

DESCRIPTION.

PLANT *about a span across, in a compact mass.*

PSEUDOBULBS *ovate, somewhat compressed, about an inch long, bearing* 1 (*rarely* 2) *narrow lanceolate* LEAVES *of about the same length as the slender nodding many-flowered* RACEMES. *The* FLOWERS, *of which there are from six to twelve (or more) crowded together on the racemes, are all expanded at the same time, and emit a pleasant honey-like smell.* SEPALS *and* PETALS *nearly equal, less than an inch long, lanceolate, acuminate, of a creamy white sprinkled over with numerous crimson dots.* LIP *about the same length as the sepals, and of the same hue, but destitute of spots except at the apex, the central portion bearing a large crimson mark nearly in the form of the letter* W; *the lip's base is formed of two parallel blunt lamellæ out of which springs the main limb which is broadly ovate, curled and jagged at the edges and recurved and acuminate at its extremity; at the point of junction with the unguis or claw occur two horned falcate processes, between which a small tumour is interposed, at foot of which are two short and blunt horns.* COLUMN *short, bifid, angular with three or four straggling cirrhi or filaments on either side.*

This pretty little *Odontoglossum* comes from Ocaña, where it was first discovered by Mr. Low's collector many years ago. At that time none of the plants reached England alive, but some dried specimens that found their way to Professor Reichenbach, enabled the great German Orchidist to name and describe the species; which turns out to be nearly allied to *O. nævium*. It has been met with by M. Roezl and other collectors, but is still a rare plant, as its constitution is apt to succumb under a long journey by sea and land. The specimens from which Mr. Fitch prepared his drawing, flowered in the spring of 1871, in the collection of the Royal Horticultural Society;—the plants having been purchased at one of Stevens' sales, among a "miscellaneous lot" of doubtful things. The species is a free-flowerer, and sends out an agreeable honey-like odour, but in point of beauty is scarcely a rival for *O. nævium*. It seems to require rather more heat than the latter species, which is one of the coolest of cool Orchids.

Odontoglossum vexillarium

PLATE XXIX.

ODONTOGLOSSUM VEXILLARIUM.

BROAD-LIPPED ODONTOGLOSSUM.

O. (PHALÆNOPSIDEA) pseudobulbis ovato-oblongis compressis 1–2-phyllis; foliis pedalibus subglaucescentibus carinatis lanceolatis acutis pedunculis gracilibus 2–6-floris subæqualibus; bracteis triangulis minutis; floribus maximis roseo suffusis; sepalis oblongo-ligulatis apiculatis; petalis conformibus vel paulò latioribus subacutis vel obtusis; labello maximo flabellato orbiculari bilobo, in unguem brevem hastatum contracto, carinis quinis abruptis in basi; columnâ brevissimâ exalatâ.

ODONTOGLOSSUM VEXILLARIUM, *Rchb. fil. in Gard. Chron.* 1867, 901; *ibid.* 1872, p. 667, *cum Xylo;* 1873, p. 580, 644, *cum Xylo,* 885; *Hooker in Bot. Mag.* t. 6037; *Illustration Horticole,* 1873, Pl. cxiii.

Habitat in N. GRENADA, *Bowman, Wallis, Roezl, Chesterton.*

DESCRIPTION.

PSEUDOBULBS *flattened, ovate-oblong, an inch or inch and a half long, bearing one or two keeled sharp-ended lanceolate* LEAVES *from six inches to a foot long, by an inch or more wide, with a glaucous tint, especially on their upper surface.* SCAPES *slender, nodding, about the same length as the leaves, two to six-flowered, clasped at intervals by small triangular* BRACTS. FLOWERS *flat, the largest in the genus, tinted more or less deeply with lovely rose.* SEPALS *and* PETALS *somewhat variable in their relative forms, in most cases nearly the same size, oblong or obovate apiculate or obtuse, about an inch long, the former nearly white, the latter of the same hue as the lip.* LIP *generally of a rich rosy tint, expanding from a narrow sagittate claw into a round and ample, 2-lobed disk, more than double the size of the petals, with five dwarf calli and some yellow streaks at its base.* COLUMN *very short with rarely a trace of wings.*

This is the handsomest of known *Odontoglossa.* In the year 1867 Mr. Low showed me a solitary flower, which had been sent to him by his collector (Bowman, I believe), but a discreet silence was observed as to the locality where the prodigy had been found, nor, alas, did living plants ever make their way to the Clapton Nursery. Subsequently the species was met with by Wallis—when collecting for Mr. Linden—and later still by Roezl; but although in each case a large number of specimens were packed up and despatched to Europe, they either died on the passage, or shortly after their arrival. Indeed, cultivators were almost beginning to despair, when, early in the spring of last year (1873), the arrival was announced of a small cargo of the beauteous novelty in most excellent condition at the establishment of Messrs. Veitch; to whom it had been forwarded by Mr. Henry Chesterton. Once safe in the Chelsea collection, it did not put the patience of Orchid-growers to any severe strain, for within little more than three months of its arrival vigorous flower-spikes were produced, and the plant itself exhibited—both in Regent's Park and at South Kensington—to the envy and admiration of all beholders. It seems to be very easy to manage, and produces its flower-scapes with the utmost profusion. Like all its congeners, it must be relegated to the cool Orchid-house, though probably it will be found to prefer the warmest end.

Professor Reichenbach has written several articles in the *Gardeners' Chronicle* about this plant, in one of which he deplores, and most justly, the wanton waste and havoc committed by collectors; who, instead of

contenting themselves with a moderate number of specimens, gather them by hundreds, or even by thousands, thus imperilling the very existence of species which, like the present, are believed to possess only a very restricted habitat. Nor does this recklessness often benefit their employers, for in most cases, the larger the consignment, the smaller the chance of its prospering on its way.

The woodcut is copied from a photograph of a small specimen of *O. vexillarium*, taken in New Grenada, in the act of flowering.

Plate XXX

Plate XXX.

ODONTOGLOSSUM ROEZLII.

ROEZL'S ODONTOGLOSSUM.

O. (Phalænopsidea) affine O. vexillario, pseudobulbis ovato-oblongis ancipitibus compressis 1–2-phyllis, foliis lineari-ligulatis inferne striatis pedunculis 1–3-floris longioribus; sepalis oblongo-ligulatis acutis, petalis sublatioribus; labello a basi angustâ sagittatâ cuneato flabellato obtuse bilobo; carinis ternis in imâ basi; prepositâ lamellâ transversâ seu callis parvis geminis; columnâ apterâ.

Odontoglossum Roezlii, *Rchb. fil. Xenia Orchidacea*, ii.; *idem in Gard. Chron.* p. 1302, (*cum Xylo*) 1873.
Habitat in N. Grenada, *Roezl; Backhouse in Gard. Chron.* p. 1334, (1873).

DESCRIPTION.

A compact plant, of which the Pseudobulbs *are ovate-oblong,* 1–2 *inches long and much compressed; these bear one or two bright green linear acute* Leaves, *which are remarkable for their parallel streaks—nine in number—on the under side, and are from six to ten inches long, and about* ½ *inch wide. The* Scapes *or* Peduncles *are shorter than the leaves, and bear from one to three (possibly more) large and beautiful flowers, which with the exception of some markings at the base of the petals and on the lip are of snowy whiteness.* Sepals *oblong-ligulate pointed at the extremity, fully an inch long.* Petals *rather wider than the sepals and with a rich crimson blotch at their base.* Lip *wedge-shaped, expanding from a narrow sagittate base into a broad two-lobed disk, an inch and a half wide, white with some bright yellow markings near the foot and in the region of the* Crest; *the latter being formed by three slightly raised "carinæ" or ridges near the base on either side, traversed by two moderate sized calli placed in front.* Column *wingless.*

This is a most charming *Odontoglossum,* allied to the preceding and to *O. phalænopsis,* but perfectly distinct from either. Its bright green narrow leaves—streaked like those of *Saccolabium Blumei,* at once distinguish the plant, even when out of flower, from its fascinating rival *O. vexillarium;* which always bears a glaucous hue, and which has larger and broader foliage, and produces double the number of flowers on a scape. The first rumours that reached us of the plant led to a suspicion that it might, after all, be only a variety of *O. vexillarium,* but these unworthy fears were at once dispelled by the flowering of the plant itself at Mr. Bull's nursery in the early part of last September, when Mr. Fitch prepared his drawing, and Professor Reichenbach obtained materials for the description which appeared in the *Gardeners' Chronicle* of September 27, 1873. The Professor has also given, in his *Xenia,* a characteristic representation of the wild plant constructed from the specimens supplied to him by its fortunate discoverer, Mr. Roezl; in whose honour the species is very properly named. It is a native of New Grenada, and, like *O. vexillarium,* appears to be exceedingly rare; we must not, therefore, murmur if the precise locality—of which the knowledge is a fortune in itself—should be for awhile withheld. But there would have been no harm in telling us the approximate elevation of the native habitat, as the same is always important as a clue to culture; especially in the case of plants with a limited range. In this instance I apprehend that both *O. Roezlii* and *O. vexillarium* are not found at a *very* high level, and that, therefore—though happily entitled to rank among "cool" Orchids—they must be placed in the warmer division of the "cool" Orchid-house.

The woodcut represents, for purposes of comparison, two nearly allied *Odontoglossa*, viz., *O. pulchellum* and *O. Egertonianum;* they both come from the same country (Guatemala) and closely resemble each other in habit—only that the pseudobulbs of the latter have much the sharper edges—but the flowers are very different. The spikes of *O. Egertonianum* (2) are a sort of Orchid-imitation of the racemes of the "Lily of the Valley," though unfortunately they have no perfume, while those of *O. pulchellum* (1) emit a delicious, almond-like odour, not very unlike that of *Gardenia radicans;* they are, moreover, very chaste and beautiful, and are freely produced during the winter months. Under these circumstances the species has long since become, what it well deserved to be, an established popular favourite. Yet on its introduction some five-and-thirty years ago—I had then just received the plant from my lamented friend Mr. G. U. Skinner—its first feeble attempts to flower left such an impression of its insignificance upon my mind, that I churlishly refused it a place among the magnates of its family in "The Orchidaceæ of Mexico and Guatemala" on which I was then engaged! But greater discrimination in the treatment of our plants—in other words the recognition of the system of "Cool-Orchid-growing"—has led to a more just appreciation of its merits.

1 2